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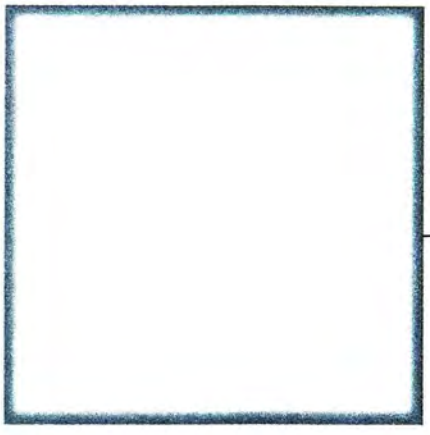


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Six Appeal Hot Reviews of the New Quicken and Illustrator

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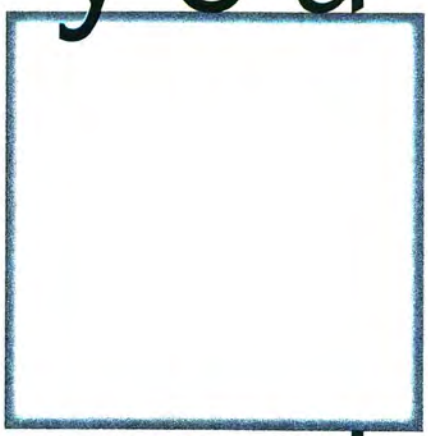
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1

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Are filled in for you.
Automatically.

2

You enter numbers.
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You come
To understand.
You get it.



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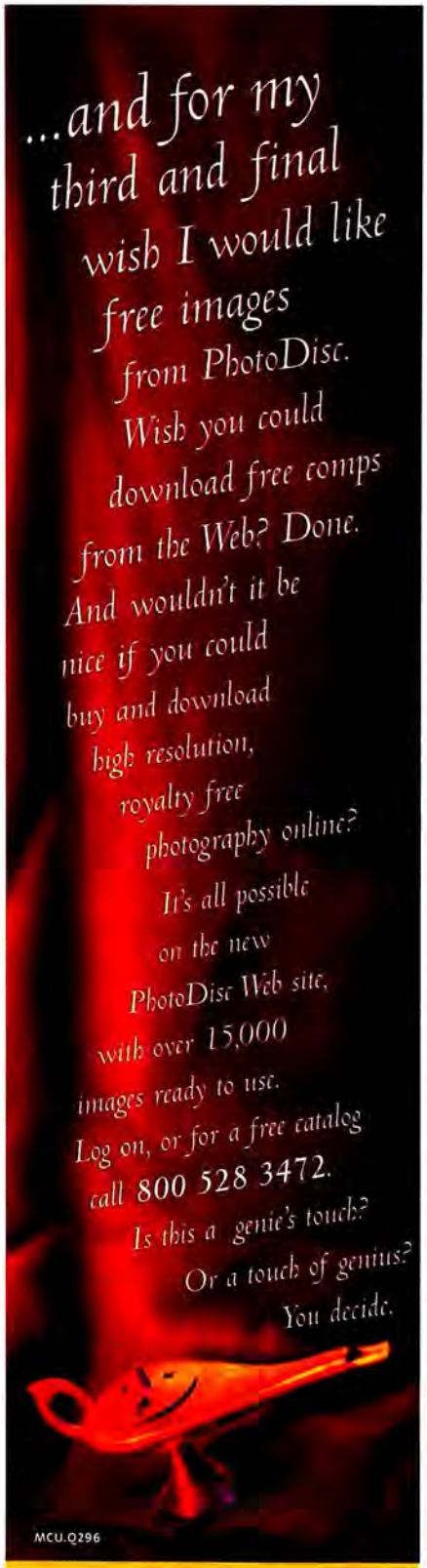
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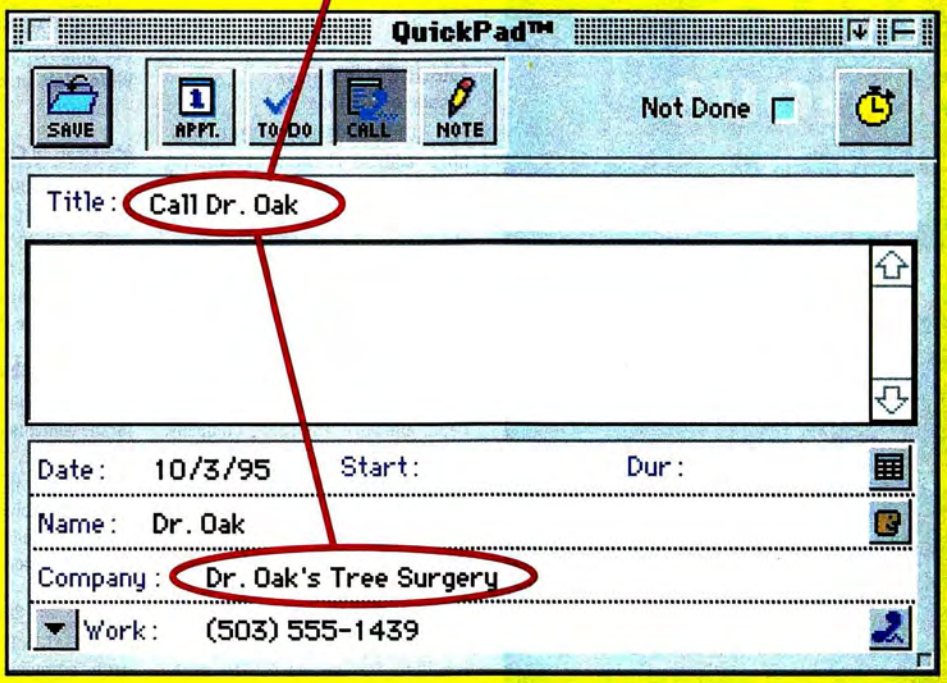
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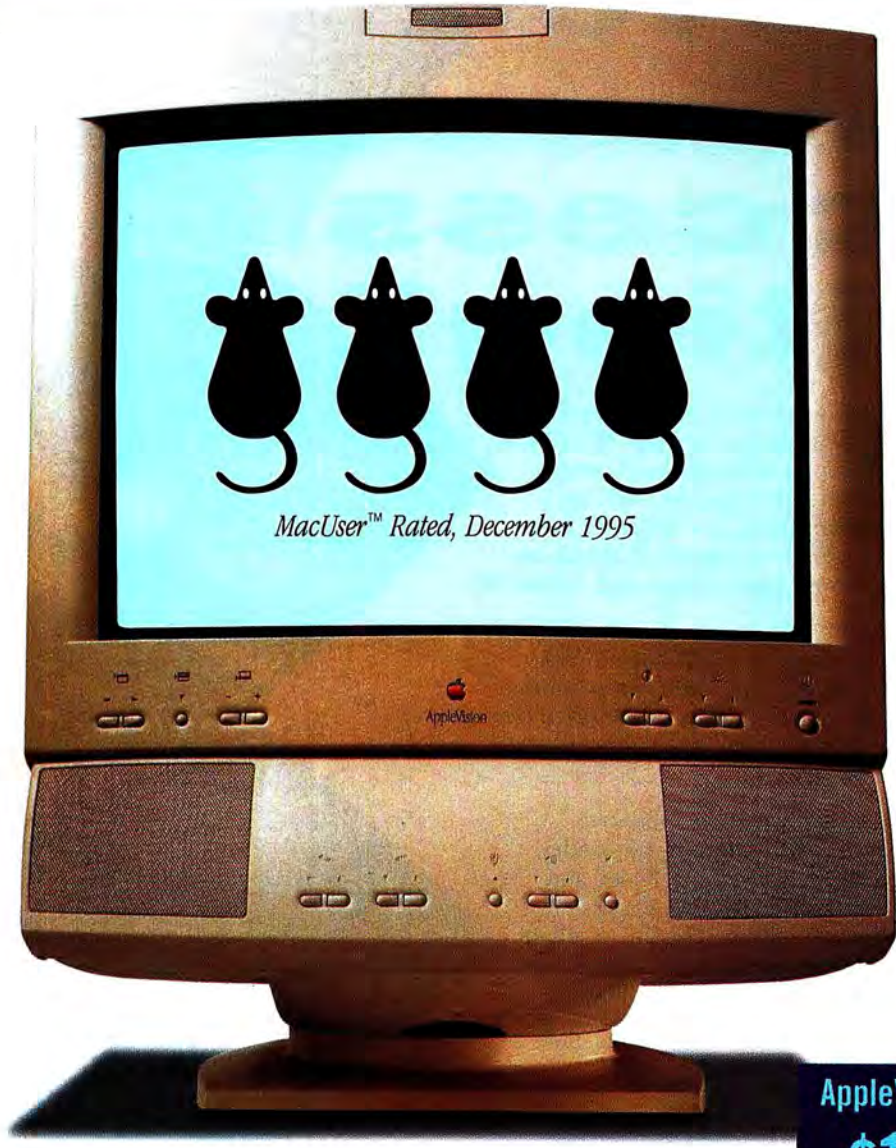
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MacUser RATED DECEMBER 1995

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Rather than toot our own horn, perhaps we should refer you to MacUser *magazine:*

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+/OUTSTANDING	•/ACCEPTABLE	−/POOR			
RATING	PRODUCT	PRICE	SUPPORT	IMAGE QUALITY	SOUND QUALITY
★★★★	**ViewSonic 17GA**	•	•	+	•
BEST BUY	A real multimedia bargain, the ViewSonic 17GA (estimated street price, $850) offers solid image quality, warm colors, fine-sounding audio, and a slew of easy-to-use on-sreen controls—all at a competitive price. The stylish case will also make you the envy of your office mates.				
★★★★	Apple Apple Vision 1710AV	−	•	+	+
★★★½	IBM 17S/S	−	•	•	+
★★★½	Nokia 447W	•	•	+	−
★★★½	Panasonic Pana Media 17	•	+	•	•
★★★	Philips 17B	•	•	•	−
★★½	Philips Brilliance 15A	•	•	•	−

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LETTERS



Andy's Web Adventure

I DON'T KNOW WHEN I've read a piece of writing on computer issues that was as clever, funny, or profound as Andy Ihnatko's "Web That Smut!" (January '96, page 25). Ihnatko points out the absolute ludicrousness of the Exon bill in a way that is not only pointed but damned inventive and amusing as well. And the final, ironic ending is indeed delicious. Outstanding work!

Michael Gemar
michael@psych.utoronto.ca

"WEB THAT SMUT!" tops all of Andy's previous articles. I'm glad to see such articles in print. I hope that people will read this and understand the point he's trying to make. Most likely, however, they'll just write you off as advocating pornography on the Net.

Jason Estep
jasone@sabine.acs.psu.edu

ANDY IHNATKO'S HUMOR and creativity never fail to provide entertainment. But imagine my disappointment when Andy failed to resist the temptation to attack conservative politicians.

When will you get it? Most people read *MacUser* for the Mac information. I just don't care what Andy thinks of Newt (especially since Gingrich is an advocate of an open, wired society and has said he doesn't think laws restricting the Web have any merit).

Couldn't you take a few shots at deserving politicians on the left too? Oh, wait — silly me. That would be *fair.*

Scott Stone
Tulsa, OK

I GENERALLY LIKE your magazine, but what is with Andy Ihnatko? After reading his off-the-wall column for 14 months, I have no idea what he's talking about. Andy rambles on each month about nothing and never gives any helpful information. Maybe it's just over my head and I don't get the joke, but his column gives me nothing to use.

Erwin Siegel
erwineas@aol.com

Game Points

I WAS HEARTENED to see your January '96 cover story on games ("Game Plan," page 78). I probably spend as much time playing games on my Centris 650 as I do using PageMaker, Photoshop, or Finale. For too long, I've envied my PC friends and the cool, whizbang games they've become accustomed to. Now I show them F/A-18 Hornet and Marathon, and they jealously concede that those games are "pretty cool."

As far as ports go, do you predict there will ever be a Macintosh version of the popular Ultima series?

Sean Driscoll
via the Internet

/ There's no word on future Mac versions of Ultima, but LairWare has made a shareware version of Ultima III available online for $25, at http://www.swcp.com/~beastie/ultima3.html. / JS

WHEN I READ that IndyCar Racing II was available for the Mac, I was so delighted! When I attempted to order the game, however, I was informed that it was for DOS only. What gives?

Chris Guth
babyguth@aol.com

/ IndyCar Racing II will be available — for Power Macs only — in early 1996. Papyrus changed its

WRITE TO LETTERS

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OPEN FOLDER

Web That Smut!, the clever game devised by our own Andy Ihnatko for our January '96 issue, was the most popular topic among letter writers this month. The goal of the game: to see how many mouse clicks it takes to surf from any given Web page to online pornography. It turns out that Andy's game is contagious: "I put my job in jeopardy to tell you that we've now made a variation on your game," wrote an anonymous employee of a major commercial online service. "We found how easy it was to get to smut from the children's section of our service." We're not sure whether to be bursting with pride or worried sick.

Any good parent ends up being the source of information for a child with a thirst for knowledge, and sometimes we feel like we play a parental role with some of our readers. Witness Michael Deangelo: "You used a cliché that I have never heard before: 'long in the tooth.' What does this mean?" Of course, something that's long in the tooth is getting old. But now we've got a question for you, Michael: How can something be a cliché if you've never even heard it before?

Astute reader Karl Kuhn e-mailed us a humorous headline that seems like more of a paradox than a cliché. A somewhat popular PC magazine ran an article entitled "Plug and Play — How to Make It Work." Some people just don't get it. Can a *Plug and Play for Dummies* book be far behind?

Speaking of Microsoft, it appears that not even America's foremost talk-show host (and we're not talking about Windows 95 shill Jay Leno) is immune from the power of Bill Gates. While on *The Late Show with David Letterman* to plug his latest book, the bespectacled billionaire took some time out to operate a Letterman invention called the Quiz Machine. According to reader Ross Moran, after repeatedly displaying the phrase "Buy Windows 95," the machine "suddenly and irreparably broke down." Talk about your clichés.

ILLUSTRATION / MARGARET MCMULLIN

phone number shortly after we went to press, so for the record, you can now reach the company by phone at 617-926-0700. Papyrus also has a Web page, at http://www.papy.com. / RL

THE MAC HAS *always* been an awesome game machine! Just ask my fourth-graders, who work and play on everything from 512Ks on up!

Evan M. London
via the Internet

THERE ARE NO good sports games available for the Mac! With the exception of Links Pro, the Mac is pathetic in the sports-gaming market. Am I the only Mac owner who is also an avid sports fan? Or does every other Mac gamer want only fantasy role-playing adventures or arcade-style games?

Dave Keeney
dk11409@cedarnet.org

Dream Accomplished

MAGGIE CANON SAYS that "a single computer that can run multiple operating systems" will be a dream come true in 1996 ("The MacUser Psychic Hot Line," January '96, page 23).

There are already plenty of computers that can run multiple operating systems, but I don't exactly call that a dream. For example, Intel x86-based machines can run DOS, UNIX, OS/2, Windows 95, and Windows NT. I don't know a lot of people who enjoy closing all open apps and then rebooting into a different OS just to run a single program, only to repeat the process again when they're finished. The simple fact of creating more computers capable of running the Mac OS isn't going to cause anyone to feel any different about the Mac OS itself.

Chris Puram
chrisp@earthlink.net

/ Yes, you can run multiple operating systems today, but as you note, it's not easy. The goal is to have an easy way to switch operating systems, so that companies can't refuse to support the Mac OS because "it's too hard to have multiple operating systems." This could help the Mac OS make inroads back into corporate America. Time will tell. / MC

Doubled Over

AFTER READING your review of Speed Doubler (January '96, page 65), I have to wonder if I bought the same package. I installed Speed Doubler on a Performa 6100. None of my software is PowerPC-native, so I expected the kind of speed improvement you report.

But when I ran some shareware benchmarking software, I got a surprise. With or without Speed Doubler, my system was at the average for a 6100. I am going to invest my next $100 in a clock-speedup chip.

J. L. Huffaker
via the Internet

/ Speed Doubler replaces your Power Mac's emulator, so it can improve the speed of your emulated applications and emulated portions of the system itself. But it can't make PowerPC-native software, which is probably what your benchmarking software was trying to measure, go any faster. To improve the speed of PowerPC-native apps, you'll need an accelerator card or a clock-chip speed booster. / JP

TED LANDAU SUGGESTS allocating more RAM to Speed Access (at least 1 MB) for better performance.

I tried to increase the RAM allocated to Speed Access, which is a system extension. The window that comes up when I "Get Info" on Speed Access does not allow me to change the memory allocated to it, presumably because it is a system extension.

What was Ted talking about?

Matt McMahon
mm@ucsd.edu

/ Speed Access uses the Mac OS's disk-cache size, which you modify in the Memory control panel. / JP

EZ Does It

YOUR REVIEW of the SyQuest EZ135 Drive (January '96, page 44) faults the drive for being much heavier than the Iomega Zip. This is not necessarily a bad thing. Indeed, the reason for the weight difference is that the Zip is made almost entirely of plastic and the SyQuest is made almost entirely of metal. I dare you to try the Drop Test on the drives *themselves* and see which wins.

David Lewis
via the Internet

YOUR REVIEW was a bit off base. You complain that the SyQuest EZ135 Drive is uglier, heavier, more cumbersome, and less durable than the Iomega Zip. Aesthetics aside, if the EZ135's two pounds are too heavy for you, you need to get to a gym quick. If performing the steps to eject an EZ135 cartridge is causing you trouble, you've got bigger problems than finding cheap removable storage.

Not only do you berate the EZ135 for petty flaws but you also discount its higher storage capacity and superior speed.

The bottom line is, If you can handle an extra button and lever and can avoid dropping your cartridges, you'll have a drive that has a third more storage than and twice the speed of the Zip. That is, of course, if you can stand the sight of the ugly little beast.

Rusty Bender
sigl@peter.fullfeed.com

I WAS DISAPPOINTED in your review of the SyQuest EZ135 Drive. First, to downplay that the EZ135 is twice as fast as the Iomega Zip is the height of hypocrisy, considering how speed plays a major part in most of your reviews. And don't forget that the EZ135 has a 135-MB capacity, versus 100 MB for the Zip.

Dwight Overturf
overtone@aol.com

Ease Up

I HOPE THAT the At Ease development team was paying attention to Ted Landau's dead-on review of At Ease for Workgroups 3.0 (January '96, page 68).

After a full semester of implementing and administrating At Ease in our 15-Mac graphics lab, I find his comments about At Ease's restricted Finder to be right on target. "The ability to turn access to specific folders on and off" is exactly what At Ease needs. Not only would it allow the software to do its job better but it would also provide a consistency in the security "language" and procedures already existing with Apple file servers.

Robert Bruce Sandkam
rbsandka@email.uncc.edu

ALTHOUGH AT EASE is a great program, version 3.0 does not deserve four mice, due to some serious flaws.

We started using it at our school as soon as it came out. It looked like the answer to all our problems, but about a week after we installed it, we found At Ease's speed creeping to a halt. Currently it takes about five minutes to log onto our network. Apple acknowledges that something is wrong but doesn't have a solution. It is very unprofessional of Apple to continue marketing At Ease for Workgroups 3.0 until it provides an update.

Raymond Ross Smith
rsmith@inreach.com

Miracle Mac

JOHN DVORAK laments that Apple is "moving away from inexpensive computing toward high-priced workstations" and that

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CIRCLE 73 ON READER SERVICE CARD

"Power Macs are nifty, but they're not for everyone" ("Looking for a Miracle," January '96, page 210). Yet he and others seem to be ignoring the amazing price/performance value of Apple's latest PowerPC-based Performas. Those Performas are possibly the miracle that Dvorak seeks, if only he would stop and look.

Bryan L. Allen
via the Internet

I REALIZE THAT the Mac, and Apple, are not perfect, but to claim that Apple has lost its way is a little confusing. The company has transitioned to the next generation of computing nearly flawlessly, something that Microsoft, still trying to get the last generation of its OS to work, cannot claim. Apple recognized the shift to a consumer-driven market, a traditional stronghold, and has positioned the Performas to beautifully meet this demand.

As for Mr. Dvorak's desire to see a $500 consumer device, I have one word: Pippin.

Brian Roessler
via the Internet

DVORAK GOES TOO FAR when he says that the Apple III "was a joke." I used Apple IIIs in my home and business from 1983 until I only recently retired the last one. They were durable, reliable machines with a superior operating system. The accounting package I was using was better than any we could find for the Mac or the PC and was the reason we continued to use the Apple III for so long. The biggest problems of the Apple III were bad press and having been introduced at the same time as the first IBM PC.

This gets down to Dvorak's old problem of Apple-bashing. Apple invented the personal computer and has been the leader ever since. Most of the new ideas in the PC industry still come from Apple. All the competition has to do is watch Apple and copy what it does. Apple is a $10-billion company with consistently increasing sales. Without Apple Computer, progress in the PC industry would grind to a halt. Stop trying to kill the goose that lays the golden eggs.

Roger Dalrymple
via the Internet

Uh, Greg . . .

IN YOUR JANUARY '96 Letters (page 13), Greg Brenneman accuses Mac users of being arrogant, while showing his own arrogance. Where he gets the idea that Mac users can't use any program that doesn't have mouse control is beyond me. I happen to have years of PC experience and much experience with mainframes, and I have absolutely no trouble operating these systems.

To prefer an intuitive interface does not make one arrogant; it makes one smart. Why don't VCR manufacturers still make you manually tune in each channel? Why have they eliminated the arbitrary, convoluted systems formerly required for programming? Would you buy a VCR that made you do all that? Would you scoff at someone who did?

Bill Mayo
via the Internet

IT'S BEEN MY experience that it's DOS/Windows users, ones who have never spent any appreciable time on a Mac, who are the arrogant ones.

Jerry Tims
jerryt1072@aol.com

A BIG BRONX CHEER to Greg Brenneman. I'm stuck using a DOS machine at work, but when I come home, my faithful Macintosh is here waiting and I can actually get some work done without having to remember arcane commands.

The Mac is the best computer available. Why should I settle for anything less?

Darleen Michael-Baker
baker@wave.sheridan.wy.us

GREG BRENNEMAN'S letter was way off the mark. He assumes, now that Apple is allowing clones, that Mac users will end up with the same compatibility problems that have plagued the PC platform. But that isn't going to happen.

A license to clone from Apple comes with heavy restrictions, forcing the clone vendor to adopt many of the standards Apple has developed. If it doesn't adopt the standards, its license is revoked.

The computer industry has learned from its mistakes. Companies are continually joining together to establish standards so as to avoid the incompatibility problems that have cropped up in the past.

Gary Good
via the Internet

A TrueType Postscript

BOB SCHAFFEL AND Chuck Weger's "Font Fatigue" (January '96, page 111) is an indictment of Adobe PostScript fonts and the printing industry's false belief in their superiority. That a company can fail to fix such problems for ten years and still succeed against superior technology is a mystery to me.



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LETTERS

As digital-font experts know, TrueType is a "smarter" font technology. TrueType fonts unify screen and printer versions in a single file and feature better hinting. TrueType fonts use quadratics (4 points), whereas PostScript employs Bézier curves (3 points). TrueType has also greatly reduced Adobe's unbelievably high font prices . . . remember paying $100 to $200 per font?

Surely it is the uninformed clinging to the false superiority of PostScript fonts — and the need to justify the expense of costly PostScript imagesetters — that is the actual problem here.

Robert Maxwell Case
robertmc@youniverse.com

BOB AND CHUCK confirm that the PostScript-font realm suffers from very serious shortcomings, but all they can do is offer some cheap and dirty work-arounds. They fail to suggest a possible avenue for resolving the problems once and for all.

I have no idea why the media is always so soft on Adobe, but I am convinced that there will be no solutions to PostScript *gotchas* until Adobe feels some heat from the media, from a sizable percentage of its customer base, or from competition that threatens its current monopoly in the desktop-publishing industry.

I have tried and failed to get my message through to Adobe. You haven't even tried.

Jim Whitlow
gem@letter.com

/ We don't consider ourselves as clinging to "false superiority" — we're just conscious of the fact that nearly every RIP and every design shop and every prepress and printing facility in the known universe has standardized on PostScript as the font technology. In fact, almost every desktop-published page that is destined for quality printing relies on PostScript for high resolution. That situation is not going to change just because TrueType may be superior in some areas — otherwise, we would all be using Beta VCRs instead of VHS.

Market economics dictates much of what becomes standard, and the installed base of high-resolution PostScript devices does not bode well for what would effectively have to be an industrywide change in technological direction. TrueType, however, certainly has helped bring font prices down. And although it's a nice idea, we're not sure that complaining to Adobe will solve current font problems, since the responsibility goes deeper than simply Adobe's software (Apple is equally guilty, we think). / BS & CW

Rooting Section

I VERY MUCH ENJOYED your article on family ancestral research ("Family Ties," January '96, page 127). However, in the discussion of Personal Ancestral File, you referred to the church that makes the software as the Church of Latter Day Saints. For the record, the name of the church is The Church of Jesus Christ of Latter Day Saints.

Thanks for making such great information available month after month.

Catherine Burnham
via the Internet

THERE WERE A FEW errors in your coverage of MacRoots II. The comment that "you have to use a scroll bar to move between generations in the lineage window" is incorrect. The scroll bar allows you to page through individual records one at a time. If you want to move through generations, you simply click on individuals' names.

Your statement that double-clicking on a person prompts a remove message is also inaccurate. There is no place where double clicking actually prompts the removal of a person.

Finally, the number for ordering MacRoots is 601-255-8677. The number that you printed is the support number.

Bruce Muckala, Itasca Softworks
via the Internet

Free at Last

I WANT TO THANK you for finally putting the MacUser/ZMac Utility of the Month somewhere where I can get my hands on it — on the Internet (http://www.zdnet.com/~macuser). The utilities always seemed like neat programs to have, but I had no way to get them. I visit your Web page at least once a month, so if you continue to put them there, I — as a loyal *MacUser* reader — will be able to get them each month. Thank you very much.

Keep up the good work on the magazine. It's the best Mac magazine around!

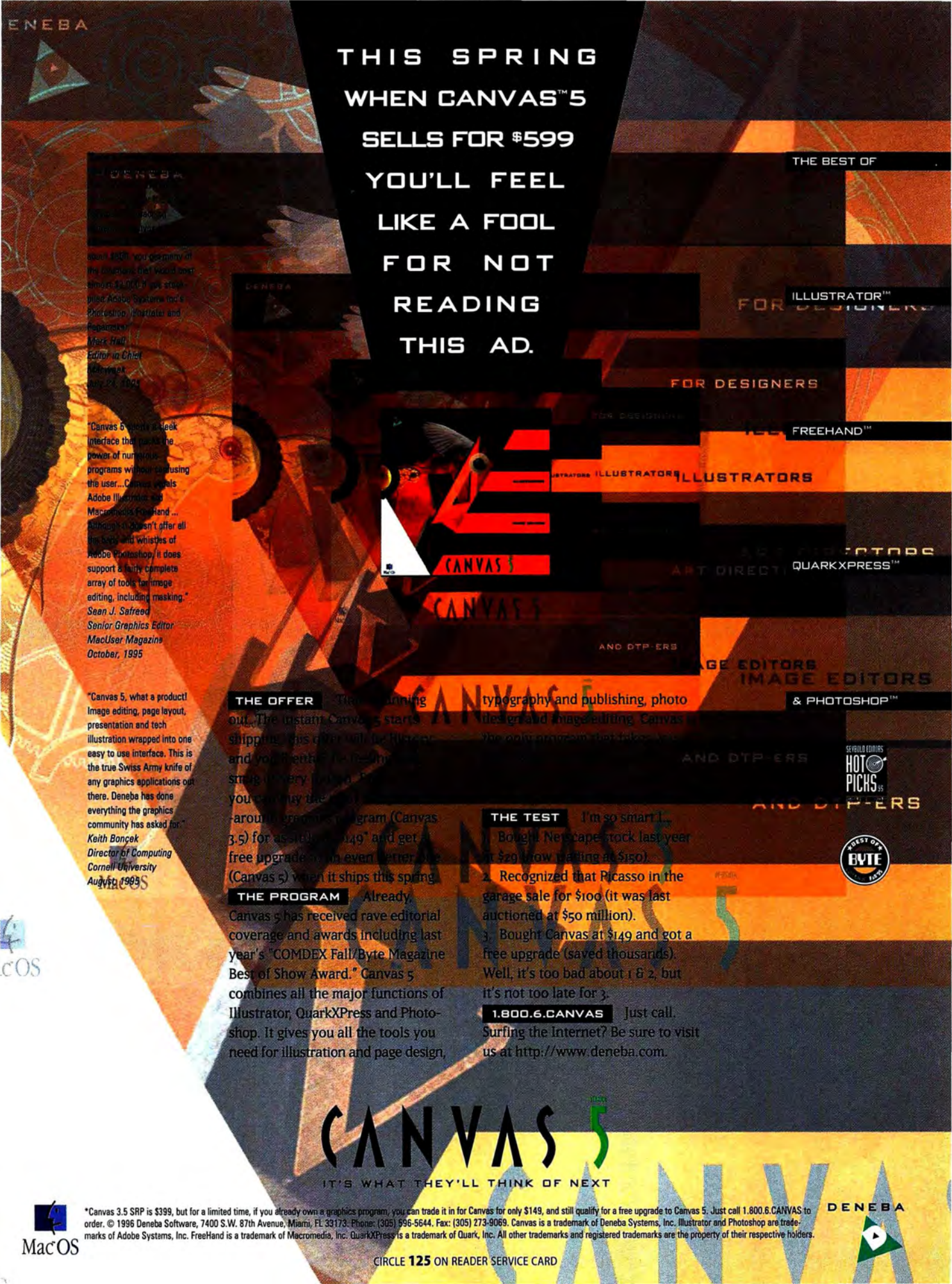
Peggy Rose
pr@aone.com

Corrections

Our story about PCI graphics cards ("Fast on the Draw," January '96, page 96) should have listed the resolutions of the Radius Thunder 30/1600 and ThunderColor 30/1600 as 1,920 x 1,080 pixels at 24 bits.

The price of the Smile CA2111 (Quick Labs, February '96, page 100) should have been given as $1,825 (list).

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Senior Graphics Editor
MacUser Magazine
October, 1995

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Director of Computing
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August, 1995

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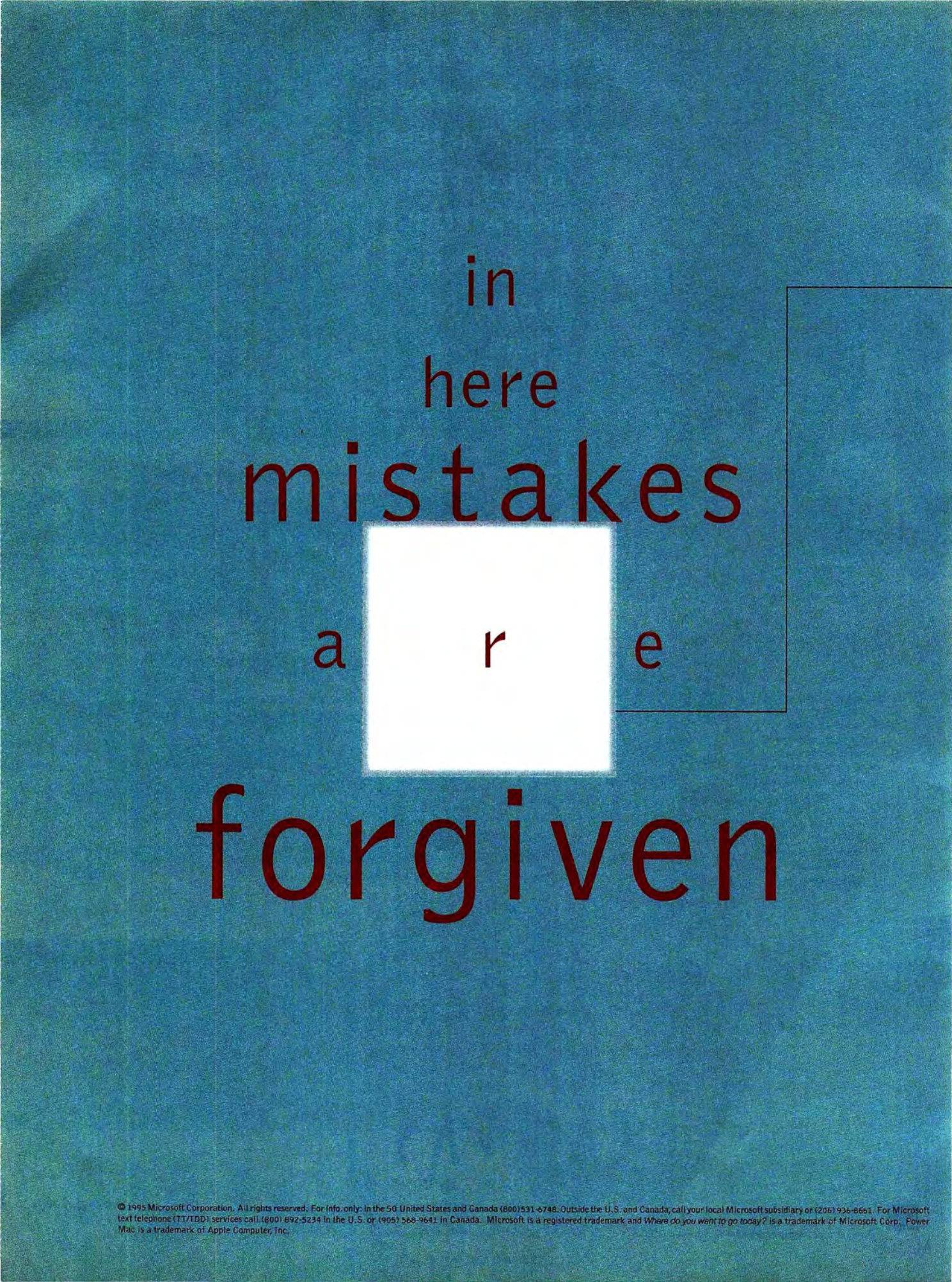
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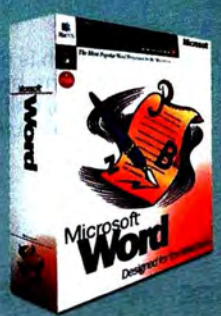
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CIRCLE **52** ON READER SERVICE CARD

PAMELA PFIFFNER



Been There, Done That

BETTER DUCK, because it's open season on Apple again. And amid all the gloom, doom, and grim speculation about the company's future, prognosticators are once more forgetting the Mac loyalist's motto: Been there, done that. The slogan Apple trotted out to combat Windows 95 is now better viewed as a business philosophy. This isn't the first time Apple has suffered a disastrous quarter — 1993's $188.3-million third-quarter loss was particularly devastating, resulting in the layoff of 2,500 employees and ultimately the resignation of John Sculley. Enter Michael Spindler, and in 1995 Apple records a first-quarter profit of $188 million. Should history repeat itself, a new CEO might lead Apple to yet another record quarter, and so on.

Meanwhile, those who count on their Macs to make a living will continue to do so, prodding developers to create tools that can do more in less time, which in turn will mean more money. It's a pretty simple equation: For many publishers, graphic artists, video editors, game developers, educators, and even cybernauts, no Mac equals no money. Period.

Back to Basics

That's why I, for one, am pleased to see Apple return to basics by focusing on what it handles best — publishing, multimedia, education, the home market, and the Internet — with higher-ticket machines than the low-margin units that made profits buckle at the knees. Been there, done that? Sure, but let's face it. These markets are traditional strongholds for Apple and represent areas where Apple has been at the leading edge in terms of innovation and elegance.

After all, Apple serves as the R&D department for the rest of the industry. If Apple didn't exist, Microsoft would have to invent it. Look at how the gang in Redmond latched onto technologies first evangelized by the Cupertino crew: QuickTime and its offspring QuickTime VR both became me-too technologies for Microsoft. Now there's QuickDraw 3D, another cutting-edge technology Apple is bringing to the Windows platform in the nick of time. When it's ported to Wintel boxes, QuickDraw 3D will be the only readily available cross-platform 3-D-rendering product.

A critical area in which Apple smokes Microsoft, Sun, Silicon Graphics, and all the rest is color publishing, especially with its ColorSync color-management technology. ColorSync brings true WYSIWYG color to the Mac, making it possible to scan, view, and print the same colors across devices (if you want the geeky details, check out this month's "Getting Color in Sync"). With ColorSync 2.0, codeveloped with prepress giant Linotype-Hell, Apple can stretch its lead too. The color-management technology available for the Windows platform is about five years behind ColorSync.



More important, because the Mac is *the* publishing platform, a spate of companies that once made their living with high-end proprietary systems is now developing for the Mac. This includes Agfa, which charged the low end with its scanners and typographic products; Linotype-Hell, which recently launched a division for low-end scanners and other desktop tools; Scitex, which made its first appearance at a recent Mac expo to tout off-the-shelf software and Internet products; and X-Rite, which engineers expensive precision color-measurement tools but which, thanks to ColorSync, is adapting the technology for a desktop device.

But if history holds true, Apple may be in danger of losing its edge in publishing too. Apple has an extraordinary record of developing revolutionary products, introducing them, and then letting them flounder, all the while hoping that other developers will pick up the ball and run with it while Apple retreats to the sidelines. Cupertino is littered with dead technologies — after all, for every QuickTime VR, there's an ARTA or a GWorld. If Apple's serious about pushing technological innovation and engineering elegance, its commitment must extend beyond the release date.

Unfortunately, ColorSync may fall prey to that benign-neglect scenario. It's not as sexy as QuickTime, QuickTime VR, and QuickDraw 3D, all of which look cool on-screen. ColorSync is one of those under-the-hood technologies that most people would sooner forget (the really cool thing is that because it works, you *can* forget about it). Apple's enthusiasm for it seems lukewarm at best, but it's one of the key things that distinguishes the Mac from the Wintel juggernaut.

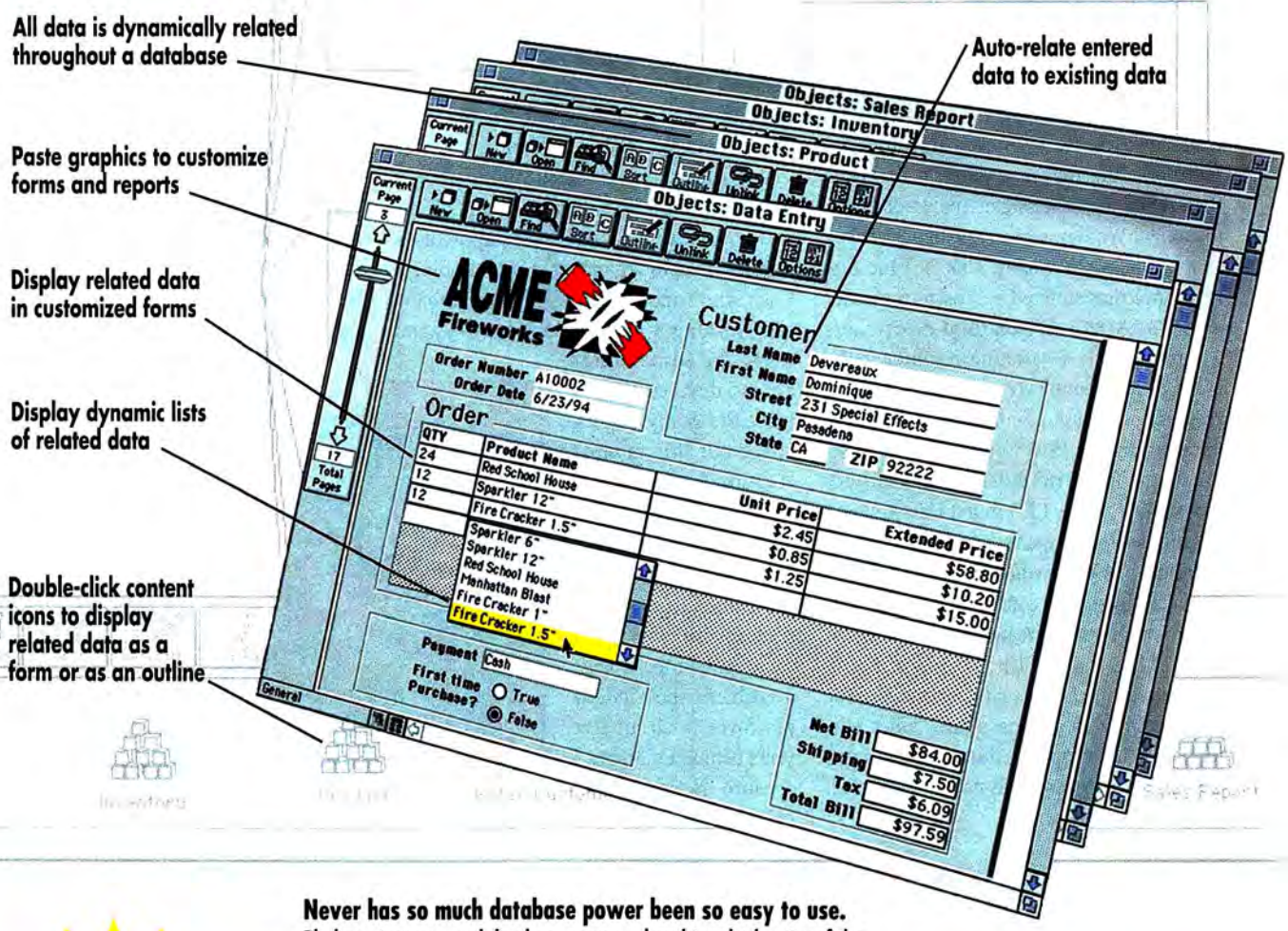
I shudder to think what might happen if Microsoft decides to get serious about publishing. But in a way, it already has, with its free Web browser and FrontPage WYSIWYG Web-authoring software (showing that, like Adobe, Microsoft's quite adept at development by acquisition). The Internet is the coming wave in publishing, and companies that made their living putting dots on paper are now working feverishly to send bits into the Net stream. Publishers who've made a significant investment in the Mac will want to repurpose not only their content but also their machines. While Microsoft is busily staking out turf on the Internet, Apple needs to unleash its Cyberdog Internet technology to guard the Mac's territory.

But let's not forget that innovation for innovation's sake gave us TrueType, PowerTalk, and QuickDraw GX, snazzy technologies that ended up leaving core users cold. Staying on the leading edge is critical to Apple's survival, but finding out what users really need is just as important.

ILLUSTRATION / MARGARET MCMULLIN

Attention Frustrated Database User!

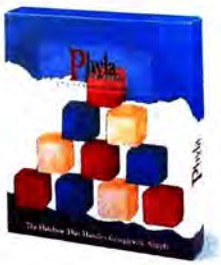
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NEWS

SyJET vs. Jaz: Winner Take All

SyQuest and Iomega battle to provide the next removable-cartridge standard.



THE HANDWRITING IS ON THE WALL: It's time for a new industry standard for fast, inexpensive, high-capacity removable-cartridge systems — and storage giants SyQuest and Iomega both claim that they will set that standard. Both are poised to release stylish, affordable, 1-GB-or-better removable-cartridge systems: SyQuest's SyJET and Iomega's Jaz. One will succeed. One won't.

A standard must be ubiquitous, attached to the Mac of every desktop publisher, service bureau, and print shop. That's pretty much the case with SyQuest systems today — and SyQuest would be quite happy, thank you, if that dominance were to continue.

But it may not — and won't if Iomega has anything to say about it. Although SyQuest is justly proud of its massive installed base of drives, those zillion drives and a buck will get you a cup of Starbucks when the SyJET and Jaz systems arrive this spring: None of SyQuest's old drives will be able to read from or write to the new SyJET cartridges, and the new SyJET drives won't read or write anything other than SyJET cartridges. We're starting from scratch.

That's understandable. Technological leaps often orphan earlier products. But this paradigm shift will level the playing field — and the battle's about to begin: Iomega and SyQuest, the SyJET and the Jaz, *mano a mano.*

The measurable differences between the two compact, attractive SCSI devices are few. The most obvious is capacity: SyJET cartridges will be available in 650-MB and 1.3-GB sizes; Jaz cartridges weigh in at 540 MB and 1 GB. SyQuest claims that the SyJET will have a slight performance advantage over the Iomega Jaz, but we take a skeptical view of performance claims until actual systems are available for testing. Prices should be about identical, with internal drives costing around $500 and externals about $100 more, low-capacity cartridges around $65 and high-capacity cartridges near $100.

So, with price and performance essentially equal and capacity similar, what will tip the balance? Will loyal SyQuest users simply follow the SyQuest label and happily move over to SyJET systems? Or will SyQuest's less-than-warm-and-cuddly reputation, still not dispelled after the reliability problems of a few years back, drive users away? Will the excitement engendered by the success of Iomega's 100-MB Zip system translate into a head start for the Jaz system? Or will concerns over the Jaz system's steadily slipping release date, coupled with frustration over the early lack of availability of Zip systems, cause users to doubt Iomega's ability to support the huge volume an industry standard requires?

It's up to you to decide. Vote with your checkbooks, your charge cards, and your purchase orders. As soon as the external versions of each drive become available (Iomega is already providing internal Jaz drives to Power Computing, MicroNet, and ProMAX), MacUser Labs will run them through their paces and we'll give you our recommendation. Until then, we advise that you sift carefully through the hype and hoopla and think about how ineffably cool it's going to be to have inexpensive, fast, unlimited storage at a gig or more a pop. / *RIK MYSLEWSKI*

PHOTOGRAPHY / MIKE FALCONER

FUTURE TECH

SCSI to Face High-Speed Challengers

A LOVE-HATE RELATIONSHIP may be the best description of the tenuous feelings that the Mac community has for SCSI. SCSI (Small Computer System Interface) is convenient and reliable — but it's also notoriously finicky.

Worst of all — from a system designer's point of view — SCSI requires expensive cabling and is limited to a relatively small number of closely spaced connections. And although its latest incarnation, Ultra SCSI, doubles the theoretical maximum throughput of current Fast and Fast and Wide SCSI-2 to 20 and 40 MB per second, respectively, SCSI is being challenged in speed, cost, and convenience by a new class of connection strategies: serial interfaces.

The two leading pretenders to SCSI's throne are an alphabet soup of acronyms: SSA (Serial Storage Architecture) and FC-AL (Fibre Channel Arbitrated Loop). A third — once the most promising, but now falling out of favor — is even more prosaically named: 1394 (its nickname, FireWire, has a bit more oomph). IBM and Conner are pushing SSA; Seagate and Quantum are the main proponents of FC-AL (Conner's recent merger with Seagate should muddy those waters). Sony has put 1394 ports onto its latest digital-video cameras, but only Radius has made any noises about offering a 1394 interface for the Mac.

Being serial interfaces (whereas SCSI is parallel), SSA and FC-AL offer greatly simplified ports and cabling, but beyond that similarity, the differences multiply. Simply put, SSA is the slower and less expensive of the two. But *slow* is in the stopwatch of the beholder: Pathlight Technology (607-266-4000) has announced a PCI card with two SSA ports that'll max out at 80 MB per second, combined. The FC-AL spec is currently clocked at 100 MB per second, with 200-MB-per-second products promised for next year.

SSA allows multiple simultaneous data transfers, so it's well suited for multiple-device setups and RAID arrays. FC-AL, on the other hand, is a one-transfer-at-a-time technology ideal for more-straightforward — and very fast — storage situations. With any luck, both will coexist in the future — much as IDE and SCSI do today. / *RM*

Microsoft Plans Net Domination

Software giant offers suite of HTML authoring tools, free Web browser.

BILL GATES IS NO DUMMY — and he's never met a market he didn't want to own. After watching Netscape's stock prices soar and press attention grow, Gates decided to fight Netscape head-on. The result? A turf war on the Internet, with Microsoft releasing new applications while souping up old favorites with Internet horsepower.

INTERNET EXPLORER 2.0. ▶ Target *numero uno* for Microsoft is Netscape Navigator. Designed to crack Netscape's hold on the Web-browser market, Microsoft Internet Explorer will be available for free on the Net, no strings attached. Internet Explorer has been available for Windows 95 for some time, and the Mac OS version should offer comparable features and performance when it arrives on Microsoft's Web and FTP servers this spring.

FRONTPAGE. Acquired in mid-January when Microsoft bought Vermeer Technologies, FrontPage is a WYSIWYG HTML editor. Previously available only for Windows, FrontPage will be available for the Mac OS later this year, putting it in direct competition with Adobe's PageMill and SiteMill. Like SiteMill, FrontPage offers WYSIWYG editing of HTML documents as well as site-management capabilities that allow Webmasters to manage and edit all the files and hyperlinks on their sites. Novice Web authors can use Wizards to quickly create basic Web pages, ready for posting. Although pricing for the Mac OS version hasn't been set, expect it to be close to FrontPage for Windows' $700 price tag.

INTERNET ASSISTANT. It doesn't possess the WYSIWYG whiz-bang of FrontPage, but Microsoft Internet Assistant does start out with a huge number of ready-to-go users: It's a plug-in that transforms Microsoft Word into an HTML authoring and conversion tool. Adding hyperlinks, placing images, and setting HTML styles can all be done from the HTML Toolbar, which appears as a modification of the standard Word Toolbar. Internet Assistant even transforms Word into a simple Web browser, so you can check your pages before you post your finished HTML files for all to see. And the price is very nice: Like Internet Explorer, Internet Assistant will be available as a free download. There is one catch, however: Internet Assistant works only with Word 6. Word 5.1 holdouts need not apply. http://www.microsoft.com. */ JASON SNELL*



MACUSER/ZMAC UTILITY OF THE MONTH

Play It Again, Mac



EVER GET TIRED of repeating time-consuming, tedious tasks? When the task's not worth the hassle of creating a macro but you could use a bit of help automating your life, just throw the MacUser/ZMac Utility of the Month — Instant Replay — into your Control Panels folder and your Mac will be set to play back everything you do. Did you just hit copy-paste-return? Smack Control-slash (or whichever key combo works best for you), and you've done it again. There's no need to learn any scripting or memorize arcane macro commands — just install Instant Replay, and you're ready to repeat.

Created by Mike Throckmorton, ZMac's Instant Replay is available only from the ZD Net/Mac service on CompuServe (GO ZMC:MACUSER), the ZD Net/Mac services on eWorld (Shortcut: MacUser), and on the Web at http://www.zdnet.com/~macuser. Look for it beginning February 29. */ SCOTT LOVE*

Digital-Video Price Drop

High-quality desktop video is becoming more affordable.

THERE'S A NEW REASON to upgrade to a PCI-based Power Mac: Now you can get quality desktop-video-editing hardware without breaking your budget.

MEDIA 100 QX. ▼ Data Translation's Media 100 qx card uses the same PCI-based capture and output technology as the company's $10,000-and-up Media 100 system, but the qx is bundled with a QuickTime-video editor, Adobe Premiere, rather than with high-end, professional-video software and sells for about $5,000.

The qx captures video at 640 x 480 pixels and 60 fields per second and captures two tracks of 16-bit audio. Both NTSC and PAL are supported. The card supports composite as well as S-Video inputs. The Media 100 qx accelerates 20 frequently used Premiere transitions, thus avoiding Premiere's processing bottlenecks. Using a Power Mac to process QuickTime video in Premiere is much faster with the qx than without; for instance, building a one-second dissolve in a QuickTime clip takes only eight seconds with the qx. If your video-editing needs become too demanding for the qx, you can upgrade to the professional-class Media 100; pricing for upgrades will be announced this spring. 508-460-1600.



MIROMOTION DC20. Even more affordable is miro's miroMotion DC20, which provides full-screen capture of NTSC or PAL video at 60 fields per second, using a Motion-JPEG compression scheme to minimize file size and maximize throughput. The DC20 costs only $1,199, but you have to settle for a 7:1 compression ratio. The card supports S-Video inputs and captures sound by using the Power Mac's built-in sound ports. The DC20 is bundled with Adobe Premiere and also accelerates several Premiere transitions. 800-249-6476 or 415-855-0940. */ SEAN J. SAFREED*

CLONE WATCH

UMAX Takes Over Radius' Clone License

SuperMac name reappears on new line of high-end systems.

SENSING A GREAT OPPORTUNITY in Radius' decision to get out of the clone business, UMAX — you may know it as a manufacturer of popular scanners — has created a new subsidiary, UMAX Computer Corporation, to scoop up Radius' clone license and sell systems that Radius originally designed but never announced. The new company is owned 80 percent by UMAX and 20 percent by Radius. Radius sweetened the deal for UMAX by throwing in rights to market the high-end clones under the SuperMac label, which Radius acquired when it merged with SuperMac way back in 1994.

UMAX's first clone, tentatively named the SuperMac StormSurge 150, is aimed squarely at high-end users. At its heart is a 150-MHz PowerPC 604 processor, the fastest PowerPC chip available. Although it comes with only a single such processor — unlike DayStar's four-processor Genesis MP — the StormSurge has a second processor-card slot, making it a likely candidate for a relatively low-cost upgrade to a dual-processor system. UMAX has not yet announced any such processor-card upgrade.

Processing power is only one way in which the StormSurge is meant to distinguish itself. For example, it's also the first Mac OS system to implement SCSI-3 Wide Ultra, which is capable of throughput up to 40 MB per second — four times the SCSI transfer rate of the fastest Mac. UMAX implements Ultra SCSI on a PCI card nicknamed "Mercury," which also contains a port for 100Base-TX Ethernet (otherwise known as Fast Ethernet). The StormSurge is the only Mac OS system to offer high-speed Ethernet as a standard feature.



PHOTOGRAPHY / MIKE FALCONER

The first SuperMac systems are expected to ship in April or May of this year. UMAX plans to deliver stripped-down StormSurge units to dealers and let them decide RAM, hard-disk-drive, and graphics-card configurations. UMAX Computer will not sell direct. Dealers' final pricing and configurations were not available at press time.

UMAX has a second system, code-named RipTide (another design Radius developed but never marketed), that is scheduled for release later this year. This lower-cost desktop system will contain a high-performance PowerPC 603e chip and three PCI slots. Stay tuned for further details. */ HENRY BORTMAN*

Run Mac Apps on a 386-or-Better PC

THERE'S BEEN A LOT OF HOOPLA in the popular press about Apple's understandable reluctance to license the Mac OS to folks who want to run it on nonstandard, non-Apple-approved machines. New Mexico-based ARDI skirts the OS-licensing question entirely with Executor 2, its new solution to the problem of how to run Mac applications on a PC.

ARDI claims that a plain-vanilla 80386-or-better PC running Executor 2 should be able to run Adobe Photoshop 3.0.x, Adobe Illustrator 5.5, Nisus Writer, and other popular Mac applications as well as read Mac-format CD-ROMs and write Mac files to SCSI devices. A PC running Executor 2 won't be a Mac OS-compatible system — just a PC that can run some Mac applications.

Executor 2 will not work with several popular applications and control panels, including Adobe PageMill, Microsoft Excel 5.0, and After Dark, and it won't emulate the Mac's serial port. Executor 2 is expected to cost $249 when it's released this spring. A free demo version may be downloaded from ARDI's Web site, http://www.ardi.com. 505-766-9115. */ CAROLYN BICKFORD*

Business Basics

Five new utilities offer more safety and convenience.

A SQUADRON OF NEW and revamped utilities has arrived to rescue you from mangled hard drives, insidious viruses, font conflicts, spelling mistakes, and the slings and arrows of outrageous disorganization.

DATA RECOVERY TOOLKIT ▼, from Total



Recall, provides several methods of recovering data from damaged SCSI-device media and floppy disks and includes automatic and manual backup features. The $179 package allows two installs; only five recoveries are allowed per install, but renewals are free over the telephone. For information on commercial-use pricing and policy, call Total Recall. 800-743-0566 or 719-380-1616; http://usa.net/totrecal.

VIRUSSCAN FOR MACINTOSH is the antivirus utility from PC-veteran McAfee. The $65 application is straightforward and simple to use and is billed as comprehensive. 408-988-3832; http://www.mcafee.com.

SYMANTEC SUITCASE 3.0 has been streamlined to manage fonts exclusively and is selling, as of April, for an estimated street price of $70. The new Suitcase automatically detects and resolves font conflicts and links fonts to applications and is PowerPC-native and AppleScript-able. Symantec, 800-334-6054 or 541-334-6054; http://www.symantec.com.

SPELL CATCHER is Casady & Greene's new name for Thunder 7, which the company recently acquired from Baseline. This combination spelling dictionary and thesaurus works in virtually all your programs and should be available starting this spring for a list price of $99. 408-484-9228; http://www.casadyg.com.

E•PAPER, from Second Glance, will provide document-management functions — including optical character recognition, annotation, indexing, and archiving — for hundreds less than competing products. e•paper is due in late spring. $169. 360-692-3694. */ CB*

Mac Tools Appear for Sun's Java Language

New development tools chart a new future for Internet computing.

THE NORMALLY LAID-BACK world of Mac-software development has been on a caffeine high for the last few months, and Sun Microsystems' Java programming language is responsible. Java promises a whole new way of obtaining and using software via the Internet — and for professional application developers and hacker hobbyists, it promises lots of development tools and an end to porting nightmares.

Java programs, called *applets,* could potentially transform the World Wide Web from an exploratory medium into a productive one, as users issue commands, perform searches, and interact with Java applications, using Java-compatible browsers such as Netscape Navigator 2.1 and Sun's HotJava. The applets themselves, like HTML pages, can reside on a Macintosh or a PC or on a UNIX-based platform.

Java's most vocal proponents claim you'll be able to create a customized software environment by downloading only those components — of, say, a word processor — that you actually need. Software will reside on an Internet server rather than on your computer.

Although Java is not yet in final release, development-tool firms are quickly announcing their plans for Mac OS-, Windows-, and UNIX-based tools. The first Mac development tool — Roaster, from Natural Intelligence — shipped in January of this year. Symantec, Metrowerks, and SunSoft (the software-development arm of Sun Microsystems) will all ship Mac development tools in midyear.

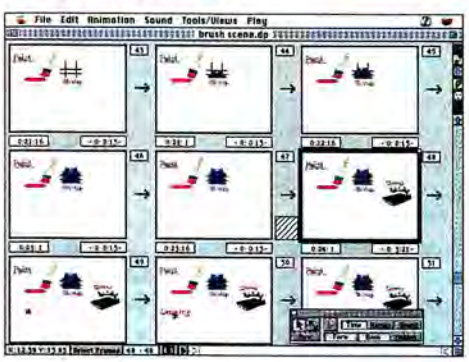
For corporate-application developers and power users, pure Java is likely to be as daunting as C++ or other high-level languages. However, with Sun's blessing, Netscape Communications has announced JavaScript, a language the company compares in sophistication to Visual Basic and PowerBuilder. JavaScript applications may resemble CGI (Common Gateway Interface) scripts, which are used to count Web-page visitors, handle database queries, and perform other Web automation tasks. Netscape says that JavaScript is more robust than CGI, because JavaScript uses fewer processes to accomplish its tasks, reducing overhead on busy Web servers. JavaScript may also become the glue that makes it possible to connect to and manipulate Java applets.

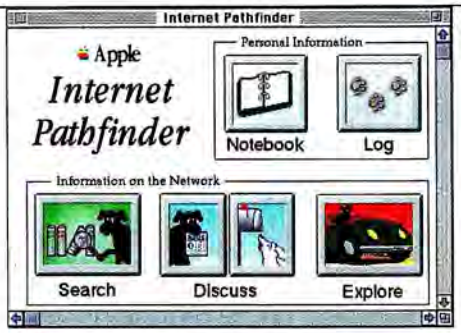
All current versions of Netscape Navigator support JavaScript, and Netscape plans to incorporate JavaScript tools into its LiveWire development environment for Windows and UNIX. For now, Mac developers have no JavaScript tools, although the language is available for licensing. */ SHELLY BRISBIN*

DeltaPoint Animates the Web

UNWILLING TO BE LEFT BEHIND in the mad rush to the Internet, DeltaPoint, maker of the powerful charting program DeltaGraph Pro, will release WebVision Animator in midyear. This $295 authoring application will allow Web authors to create multimedia presentations that can be displayed directly in Netscape Navigator via a Navigator plug-in. (Users of other Web client applications will be able to view WebVision Animator files via a stand-alone application.)

WebVision Animator's point-and-click interface targets Web-page designers who aren't programmers at heart. But its greatest strength may be its compression — DeltaPoint says files will be extremely small, allowing them to be downloaded quickly over modem links. 408-648-4000. */ JASON SNELL*





Apple's CyberDog

IT MAY SEEM that Apple's Internet offerings are a bit behind the times. All that will change this spring when CyberDog is unleashed.

CyberDog provides Internet access for Web browsing, e-mail, FTP file transfers, Telnet sessions, and the like. However, rather than being a monolithic application or a suite of separate utilities, CyberDog — that's just a code name, by the way — is a set of OpenDoc parts.

OpenDoc is a software technology that allows *parts* — small functional elements — to be embedded within *containers* — what we today call documents. An example: Today's page-layout programs let you import various types of graphics, but to edit each graphic, you have to go back into the program that created it. With OpenDoc, embedded graphics would be OpenDoc parts, which could be directly edited in place.

Apple's plans for CyberDog go even further. For example, when you use it to access an FTP site, a window will appear that contains a list of hierarchical folders, just as in the Finder. And — you guessed it — you'll be able to download a file to your local hard disk by dragging it from the FTP-site window to your desktop.

Apple will supply an OpenDoc-compliant SimpleText-like container and other basic elements. Things should get more exciting later this year: Although Claris isn't talking, our advice is to keep your eye on it — especially if you think an OpenDoc-compliant version of ClarisWorks might be of interest. */ HENRY BORTMAN*

Raising Your Network's Speed Limit

AS OPEN TRANSPORT fixes the bugs of early releases, network-hardware vendors are bringing high-speed networking to a variety of Macs.

Fore Systems (412-772-6600), whose ATM (asynchronous transfer mode) cards have been available for NuBus Macs for some time, is now offering an ATM-155 adapter for PCI-based Macs. The $995 ForeRunner PCA-200EMAC supports multimode-fiber or Category 5 unshielded twisted-pair cabling.

Fore says that Open Transport makes ATM much more viable in Mac environments by overcoming the throughput limits of AppleTalk and MacTCP. The company claims throughput of up to 108 Mbps for its PCI card under Open Transport 1.1.

Fast Ethernet's 100-Mbps performance is no longer just for the Power Mac generation. Dayna (801-269-7200) has introduced the 100-Mbps BlueStreak 10/100 PDS Adapter, designed for LC, IIsi, and Performa users and street-priced at $270. Also new is its BlueStreak 100/100 Bridge, street-priced at $1,250. The bridge has two 100BASE-TX ports that allow users to segment Fast Ethernet networks for better performance. */ SB*

Take No Prisoners

New game hardware puts you in the middle of the action.

YOUR MAC IS A WIMP. Its standard keyboard, mouse, monitor, and audio just don't cut it for games. Serious gamers need serious hardware. Here are a few new products that will transform the software you play into the software you *experience.*

LABTEC LCS-9210 IMAGER. You've been zooming through Descent's 3-D world, but where's the thrill of the 3-D sound? You need an Imager. Using Spatializer's patented 3-D-sound technology, the $49 Imager adds spatial effects to any set of external stereo computer speakers. The Imager has controls for adjusting the degree of sound separation, so you can get just the right sound, whether you're rocketing through Descent or simply relaxing to the strains of a Nine Inch Nails CD. 360-896-2000.



▼ QSOUND ULTRAQ. Labtec's Imager isn't the only game in town for stereo enhancement — there's stiff competition from the QSound Electronics UltraQ. This futuristic-looking stereo enhancer uses different technology than does Labtec's Imager, but the effect is strikingly similar: You hear sounds coming from beyond the range of your external speakers. Eerie, but when a hell-spawned mutant is sneaking up on your left in a game of Doom, it's nice to know he's there. Price was not set at press time. 408-358-9987.

KOSS JR/900 RF CORDLESS STEREOPHONE. Does your office sound like a bad day in Bosnia when you play a network game of Marathon 2? Reduce the cacophony with this $99 cordless stereo headphone that works within 150 feet of your Mac. The rechargeable NiCd batteries provide up to ten hours of use, and a battery recharger is built into the transmitter. 414-964-5000.

▼ ADVANCED GRAVIS FIREBIRD. Swapping keyboard control for an $80 Firebird joystick will demonstrate to fellow PowerPC pilots that you're Top Gun. With 13 programmable buttons, adjustable tension, a large base, and rudder-pedal support, picking off bogeys is as easy as shooting fish in a Long John Silver franchise. 800-257-0061 or 604-431-5020.



VICTORMAXX TECHNOLOGIES CYBERMAXX. ▼ Try keeping calm during a Marathon 2 battle when a SPNKR-X18 missile homes in on you while you're wearing a CyberMaxx virtual-reality helmet — "in your face" gets a new and mind-blowing meaning. The CyberMaxx uses two .7-inch, 120,000-pixel color screens with a 56-degree horizontal field of view and offers tracking and stereo sound — all for an estimated price of under $900 when it's released this spring. 708-267-0007. */ ROMAN LOYOLA*



Not Your Father's YoYo

New telephony tool makes the most of Caller ID services.

BIG ISLAND'S NEW YOYO Telephone Manager will give you more power over your phone than you ever thought possible — but only if you sign up for your local phone company's Caller ID service.

Communicating with your Mac through the ADB port and using information passed to your phone from Caller ID, YoYo can tell you who's calling, screen or route calls, use your Mac to play distinctive rings for individuals or groups of callers, and even integrate with PIMs.

Caller ID service (currently available in 47 states and the District of Columbia) passes the number of the calling party to the receiving phone or telecom device. YoYo uses that information to look up the caller in its database software; in YoYo-friendly PIMs, such as Now Software's Now Contact and TouchBase; or in any application that's compatible with the appropriate Apple-event or Microsoft Messaging API (MAPI) calls. Your Mac can then display a window with any caller-related notes.

YoYo can send you an alphanumeric message through your paging system — and you can tell it who's allowed to page you. Unfortunately, YoYo — like most other analog telephony devices — is stymied by big-office PBX systems. Small businesses — including those that use telecom-company-maintained Centrex systems — may find the $149 YoYo an inexpensive alternative, though. */ RIK MYSLEWSKI*



PHOTOGRAPHY / MIKE FALCONER

More Than Just a Game

GAMES USED TO BE SO SIMPLE. Pick up ax. Wiggle Pong paddle. Keep Ms. Pac-Man one step ahead of Pinky, Blinky, Inky, and that other guy. Then came multimedia, stereo sound, and QuickTime video, and suddenly game developers weren't satisfied with good ol' mindless entertainment. To reach the Mac-game top-ten list today, a game must offer something extra.

STAR WARS REBEL ASSAULT II: THE HIDDEN EMPIRE. It's not just a game; it's an interactive feature film. Lucas Arts needed two CD-ROMs to hold all the action of Rebel Assault II: The Hidden Empire. An involving plot and lightning-fast, full-screen video distinguish this sequel to Lucas Arts' immensely popular Rebel Assault. The cast of characters again stars you as the surprisingly talented Rookie One — although this time around, female players aren't offered the option of a female Rookie One character as their surrogate. $54.95. 800-985-8227 or 415-472-3400.

MCKENZIE & CO. ▼ To girls offended that Lucas Arts demoted them from full parity in the Rebel Assault II extravaganza, Her Interactive offers a 5-CD-ROM consolation prize — but this "fun-filled junior year at Madison High" isn't likely to interest any would-be women warriors. On the contrary, this compilation of oh-so-cute video segments about dating, boy-watching,



mall-crawling, and makeup is designed for teens whose idea of adventure is "dancing the two-step with Bret Halsey, a shy cowboy"; giggling through a "madcap marshmallow search with Brandon"; or simply mooning over some other dreamy hunk. $59. 800-561-0908 or 505-880-1718; http://www.her-online.com.

CHAOS. This soon-to-be-released adventure game offers a new component to the more-is-more ethos of today's Mac-game developers: learning. As in the Mother of All CD-ROM Adventure Games, Myst, you explore a 3-D environment, interacting with its inhabitants and solving puzzles. The twist to Chaos is that all the puzzles revolve around chaos theory, the stupendously complex mathematical construct that searches for order in seeming disorder. You can trust both the science and the art behind Chaos, if the provenance of its developers is any indication: The Interactive Telecommunications Program at New York University's School of the Arts and The New York State Center for Advanced Technology, both working with Harper Collins Interactive. $49. 800-424-6234 or 212-207-7000; http://www.chaoscdrom.com. */ RM*

NEW & NOTABLE

HARDWARE

Toshiba Integrated Multimedia Monitor. TIMM is a TV. TIMM is a monitor. Stop — you're both right. This 20-inch, .58-mm dot-pitch display takes TV/monitor packages to another level. It includes a built-in stereo TV tuner, 500 lines of TV resolution (a 640-x-480-pixel resolution in monitor mode), and a remote control for all TV and computer-related features. $999. 201-628-8000.

▼ **Panasonic KXL-D742.** Commuter computing's first fully portable quad-speed CD-ROM drive connects to your PowerBook via a Type II PC Card SCSI interface. The drive weighs just 14 ounces and has dimensions of 5.5 x 4 x 8 inches. $499. 800-742-8086 or 201-348-7000.



AppleVision 1710. Along with a maximum resolution of 1,280 x 1,024 pixels, this bright, well-focused 17-inch monitor also boasts some of the best monitor-control software we've ever seen, including a self-calibrator and an adjustment for ambient lighting. Apple Computer. $1,039. 408-996-1010.

Maxoptix T4-2600 Optical Drive. This 2.6-GB, backward-compatible 5.25-inch magneto-optical drive supports 650-MB, 1.3-GB, and 2.6-GB media formats, and it ships with one 2.6-GB cartridge. The drive's maximum throughput is a peppy 4.6 MB per second. $2,550. 510-353-9700.

SupraFAXModem 288PB. This internal modem is one of the speediest for PowerBooks (models 100 to 180c). It has a data-transmission speed of 28,800 bps, a fax speed of 14,400 bps, and Caller ID capability. Its flash ROM allows easy upgrades from several venues, including the World Wide Web. $269.95. Supra. 800-727-8772 or 360-604-1400.

Optiquest V775. This 17-inch flat-screen monitor has a dot pitch of .26 mm and a maximum resolution of 1,600 x 1,280 pixels. OnView controls make adjusting screen images easy, and ViewMatch technology matches the color of screen images to that of printer output. $895. ViewSonic. 909-869-7976.

Best Data Products Smart One 2834VLXMAC. This V.34 modem has integrated voice-mail, including remote access and up to 999 voice-mail boxes. $180. 818-773-9600; http://www.bestdata.com.

SOFTWARE

Big Business 2.0. This new version of the *MacUser* Eddy Award-winning business-management tool offers improved Internet access and import/export functions. By exporting files into formatted HTML, users can even design their own Web pages (using a one-touch button that physically creates the pages). $389; upgrade, $99. Big Software. 415-919-0200.

Business Law Partner. Created by a band of attorneys to make life easier on us layfolk, this utility has templates for over 50 legally binding documents, a Quick Finish three-step audit prompt, even an online interview that performs as your attorney. For the price of a quarter hour with a live lawyer, you can now intimidate on your own. $29. Quicken. 800-811-0458.

Dramatica Writer's DreamKit. A writing assistant for even the most organized aspiring novelists and playwrights, DreamKit has various tools, such as the Dramatica Query System and the Story Engine — prompts that help you organize dramatic intent, characters, or a constantly changing plot. Priced so low that even a writer can afford it. $149. Screenplay Systems. 818-843-6557.

Ashlar DrawingBoard. This user-friendly design package anticipates your ideas by using artificial intelligence to interpret mouse movements and then provides vital drafting statistics. Integrated Parametrics technology allows users to create shapes and duplicate them by using different dimensions. $250. Ashlar. 408-746-1810.

Discribe V1.0. The first CD-ROM-mastering software that employs a CPU's hard drive as a virtual CD-ROM drive to simulate actual CD-ROM performance. Allows for direct copying from CD-ROM to CD-R. Supports most 1x, 2x, 4x, and 6x CD-Recorders. $399.95. CharisMac Engineering. 800-487-4420 or 916-885-4420.

CyberSound VS. Turn your Mac keyboard into a high-quality MIDI-compatible synthesizer, and make sweet music on your computer. CyberSound VS comes with 512 sounds created with a variety of synthesis technologies. It even has an integrated sequencer and complies with General MIDI, General Standard, OMS, and QuickTime. $199. InVision Interactive. 800-468-5530 or 415-812-7380.



◀ **Paper Animal Workshop.** The latest in technorigami, from the maker of the Greatest Paper Airplanes, this CD-ROM teaches kids the difficult task of creative paper folding. You can print designs (with fold lines) for a dozen different animals or simply "fold" virtual patterns on your monitor. $25. Strategic Alliance Partners. 800-711-0582.

Day of the Tentacle. This adventure-game sequel to the Maniac Mansion CD-ROM puts players into a world inspired by the classic cartoons of Chuck Jones. The goal? To prevent mutated pet tentacles, created by an evil scientist, from taking over the planet. Sounds like a goal we can all get behind. $30. LucasArts. 415-472-3400. / *REBECCA OLSON*

MACINTOSH PRICE INDEX

THE UNITED COMPUTER EXCHANGE index reflects average sales prices of new and used Macs as of January 8, 1996. Prices (other than those for compact models, Performas, and LCs) do not include a monitor or a keyboard. The United Computer Exchange is a national clearinghouse of used microcomputer equipment.

Mac Model	New	Used
Classic II (4/40)	•	$325
LC III (4/80)	•	$350
Performa 5215CD (8/1GB)	$2,199	$1,550
Performa 6220CD (16/1GB)	$2,199	$1,700
IIsi (5/80)	•	$300
IIci (5/80)	•	$450
IIfx (4/80)	•	$550
Quadra 605 (4/80)	•	$425
Quadra 610 (8/160)	•	$550
Quadra 630 (4/250)	•	$600
Quadra 650 (8/230)	•	$1,125
Quadra 660AV (8/230/CD)	•	$950
Quadra 700 (8/230)	•	$850
Quadra 800 (8/230)	•	$1,200
Quadra 840AV (8/230/CD)	•	$1,675
Quadra 900 (8/230)	•	$1,200
Quadra 950 (8/230)	•	$1,400
Power Mac 6100/66 (8/350/CD)	•	$1,000
Power Mac 7100/80 (8/700/CD)	•	$1,300
Power Mac 7200/90 (8/500/CD)	$1,699	$1,400
Power Mac 7500/100 (16/1GB/CD)	$2,999	$2,350
Power Mac 8100/100 (16/1GB/CD)	•	$2,250
Power Mac 8100/110 (16/2GB/CD)	•	$2,500
Power Mac 8500/120 (16/2GB/CD)	$4,499	$3,800
Power Mac 9500/132 (16/2GB/CD)	$5,299	$4,300
PowerBook 145B (4/80)	•	$700
PowerBook 150 (4/120)	$999	$750
PowerBook 165 (4/80)	•	$900
PowerBook 165c (4/80)	•	$1,100
PowerBook 170 (4/80)	•	$875
PowerBook 180 (4/80)	•	$1,250
PowerBook 190cs (8/500)	$2,199	$1,700
PowerBook 520 (4/160)	•	$1,275
PowerBook 520c (4/160)	•	$1,450
PowerBook 540 (4/240)	•	$1,500
PowerBook 540c (4/320)	•	$2,600
PowerBook 5300cs (8/500)	$2,699	$2,200
Duo 250 (4/200)	•	$1,100
Duo 280 (12/240)	•	$1,750
Duo 280c (4/320)	•	$1,900
Duo 2300c (8/750)	$3,499	$3,000

• = discontinued model

For more pricing information on these and other models, call 800-755-3033 or 770-955-0569 or visit http://www.uce.com. And find it on ZD Net/Mac, in Library 1 (Special Reports) of the MacUser Forum (GO ZMC:MACUSER). On eWorld, go to shortcut MACUSER, in MacUser Software Library:MacUser Special Files.

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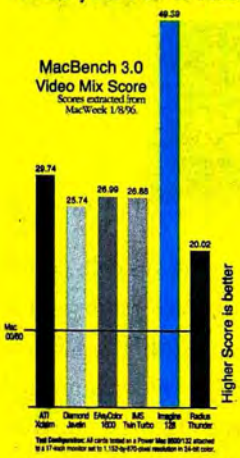
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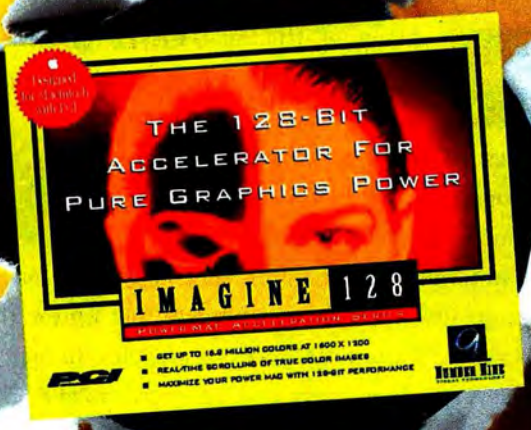
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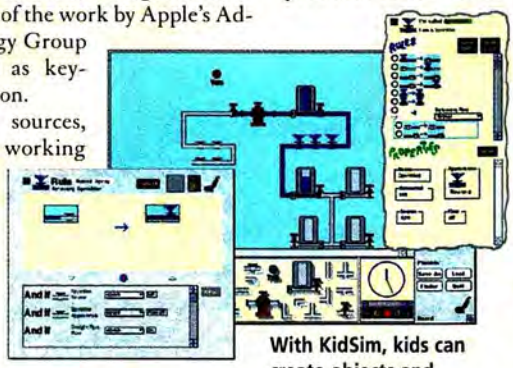
MacWEEK REPORT

ATG R&D efforts to bear new fruit

By Joanna Pearlstein

Deep within the Apple campus, a small group of scientists is developing technologies it hopes will sharpen the company's technical edge. While not all its efforts graduate to prime time, some of the work by Apple's Advanced Technology Group has been hailed as keystones of innovation.

According to sources, ATG is currently working on projects such as the search engine in Copland, object-oriented programming (OOP) tools, system software aimed at the educational market and easy-to-use multimedia applications.



With KidSim, kids can create objects and simulate their behaviors.

Several ATG undertakings have found their way into consumers' hands. They include QuickTime VR; QuickDraw 3D; ColorSync; Rosetta, handwriting recognition technology in Newton 2.0; and the recently released Chinese Dictation Kit.

Sources said several of ATG's latest initiatives will be incorporated into forthcoming products. A new search engine, code-named V-Twin, is part of Cyberdog and may see widespread use as Copland's search engine. Described as an information-access tool kit, V-Twin is able to distill long text documents into their most salient elements.

Another ATG project, known as Calico, is a storyboard application for planning movies. The application features tools for drawing, annotating movies and recording sounds. Calico may be released

See ATG, next page

Apple rethinks PowerTalk

By Robert Hess

In an exclusive interview with MacWEEK, Apple confirmed that it is moving away from today's PowerTalk as its core communications solution. Instead of Apple's current proprietary technology, the next major revision of PowerTalk will be based on OpenDoc and Internet services like SMTP.

"Adoption of PowerTalk has been very disappointing," said Andy Lauta, product line manager for communications and collaboration. "Less than 10 percent of System 7.5 users are using the technology, because it is too memory-hungry, too slow, confusing to use and does not do enough."

The last version of Apple's current collaboration technology, PowerTalk 1.1, will still ship this quarter, Lauta said. Apple still plans to release full documentation on its application programming interfaces to make development easier for third parties, he added, and will continue to support the existing product.

The update will also incorporate gateways licensed from StarNine/Quarterdeck, add mail folders, include a new control panel to let users pick their favorite mail reader, and separate digital signatures from mail.

Lauta said that the Copland version of PowerTalk will be "totally new code" and will "answer all user concerns." It will be smaller and faster; it will also use OpenDoc for the interface, increasing cross-platform support, he added. The Copland version of PowerShare will use Apple's recently acquired Apple Internet Mail Server and will take advantage of features such as AppleShare users and groups. Apple declined to comment on a date for Copland. □

System 7.5.3 to update Finder, Open Transport

By Clifford Colby

Apple is expected to test its own unification theory in February or March by shipping an update to the Mac system software. System 7.5 Update 2.0 will reportedly roll into one release everything offered in previous System 7.5 updates plus several new features, bug fixes and native parts. The update will change the version number of the OS to 7.5.3, according to sources.

System 7.5.3 will reportedly rectify the disparity among Macintosh platforms, giving 680x0 machines and NuBus- and PCI-based Power Macintoshes the same system software. Among the expected additions to System 7.5.3 will be a new version of Open Transport, which was previously available only for PCI-based Macintoshes. Open Transport 1.1 will run on 68030- and 68040-based Macintoshes and be tuned for faster networking links, including Fast Ethernet. Open Transport 1.1 will also be optimized for server applications. System 7.5.3 will reportedly include an updated Finder that will use the processor's cache more efficiently. Sources said the new Finder will speed file copies, particularly when copying large numbers of small files.

The update is expected to include a Power Macintosh-native Resource Manager and Power Macintosh-native and 680x0 versions of the Modern Memory Manager. System 7.5.3 will also reportedly reduce the launch times of applications when virtual memory is active.

According to sources, System 7.5.3 will come with a full suite of updated control panels, extensions and printer software. The new system is expected to upgrade portions of AppleScript, ColorSync and text-to-speech processing.

The new OS will have native versions of Apple Guide and SCSI Manager, according to sources.

Users, however, will have to wait until later this year for other additions to the system: OpenDoc and a new version of QuickDraw 3D are expected to become part of the OS in late spring or early summer.

Apple declined to comment. □

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ATG

From previous page

as a commercial product.

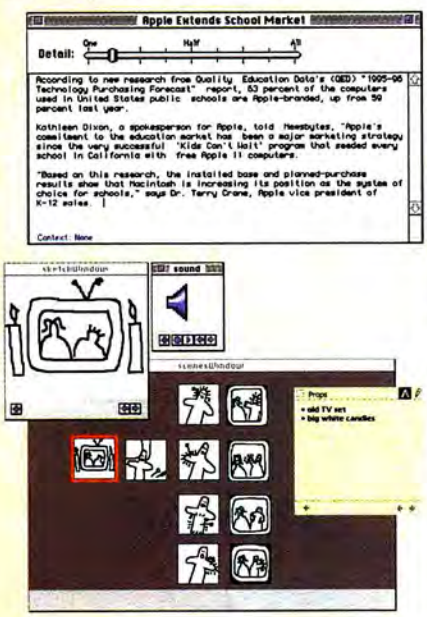
KidSim is an ATG-developed, OOP language that lets children build their own simulations. With KidSim, students can create objects and characters and simulate movements and behaviors.

ATG's efforts to provide users with newfangled authoring environments are not solely aimed at education.

SK8 is a multimedia environment sometimes called an object-oriented dynamic authoring language. Built on LISP, SK8 has been rumored to be a future version of HyperCard and the front-end to ScriptX. It was reportedly used to create the first version of KidSim and has been moved out of ATG and into Apple's development-tools group.

While some ATG projects have come to fruition, others have died on the vine. In years past, ATG efforts mostly ended up as fodder for splashy demos by Apple executives. For example, Apple Senior Vice President David Nagel three years ago demonstrated a technology code-named Piles that was a 3-D interface for organizing documents; the project was ultimately killed.

While in the past ATG would typically work on projects for several years, the group has been streamlined to work on hardware and software projects that take less time to develop. Now the group is charged with moving technologies out of the garage and into real products. □



ATG's search engine, V-Twin (top), can summarize text and reduce it to its three most important sentences. With Calico (bottom), ATG's story-boarding tool, users can draw and annotate movie scenes.

Mac vendors rebound as sales, earnings jump

By Jon Swartz

John Travolta; Tony Bennett; and Jim Harbaugh, the nimble-footed Indianapolis Colts quarterback nicknamed "Captain Comeback," have proven that life sometimes offers second chances. Furthering the point, a handful of Mac vendors considered moribund just a year ago are bouncing back.

At Macworld San Francisco last month, plenty of corporate phoenixes were rising from the ashes. Truevision Inc., Asanté Technologies Inc. and others have overhauled operations, found the right product mix and taken advantage of the Mac market to post financial comebacks and, in some cases, have successfully gone public.



Heavy activity on the show floor mirrored the recent reversal of fortunes for several Mac vendors, such as Truevision, Asanté and Visioneer.

"Despite all the bad news — Radius being clobbered, Apple's woes — people overlook that Apple is a $12 billion company and there are plenty of business opportunities for developers," said Rick Wyand, CEO of STF Technologies Inc. "Plus, the Mac's development and support costs are significantly lower than those for Windows-based machines."

Examples of vendor turnarounds abound:

▶ Truevision. The company came to the expo a year ago in a "state of shambles," said CEO Lou Doctor. Then known as RasterOps Corp., it was in the throes of an 11-quarter losing streak, with a bloated sales staff and an unfocused strategy.

Last month Truevision of Santa Clara, Calif., announced its third straight profitable quarter. Its Targa video board sales have never been stronger. "Our video business on the Mac and Windows side is extremely strong," Doctor said.

▶ Asanté. Many in the Mac market had given up on Asanté a year ago when it was beset by management and money troubles. The Sunnyvale, Calif., networking company now claims to be stable and has delivered its Fast Ethernet line. Asanté stock closed at $6.38 per share on Jan. 11, about twice its price in May.

▶ Iomega Corp. Sales of its Zip drive have invigorated the financial fortunes of the Roy, Utah, company. Its stock closed at $43.13 per share on Jan. 11, more than five times its trading price in April, when the Zip shipped.

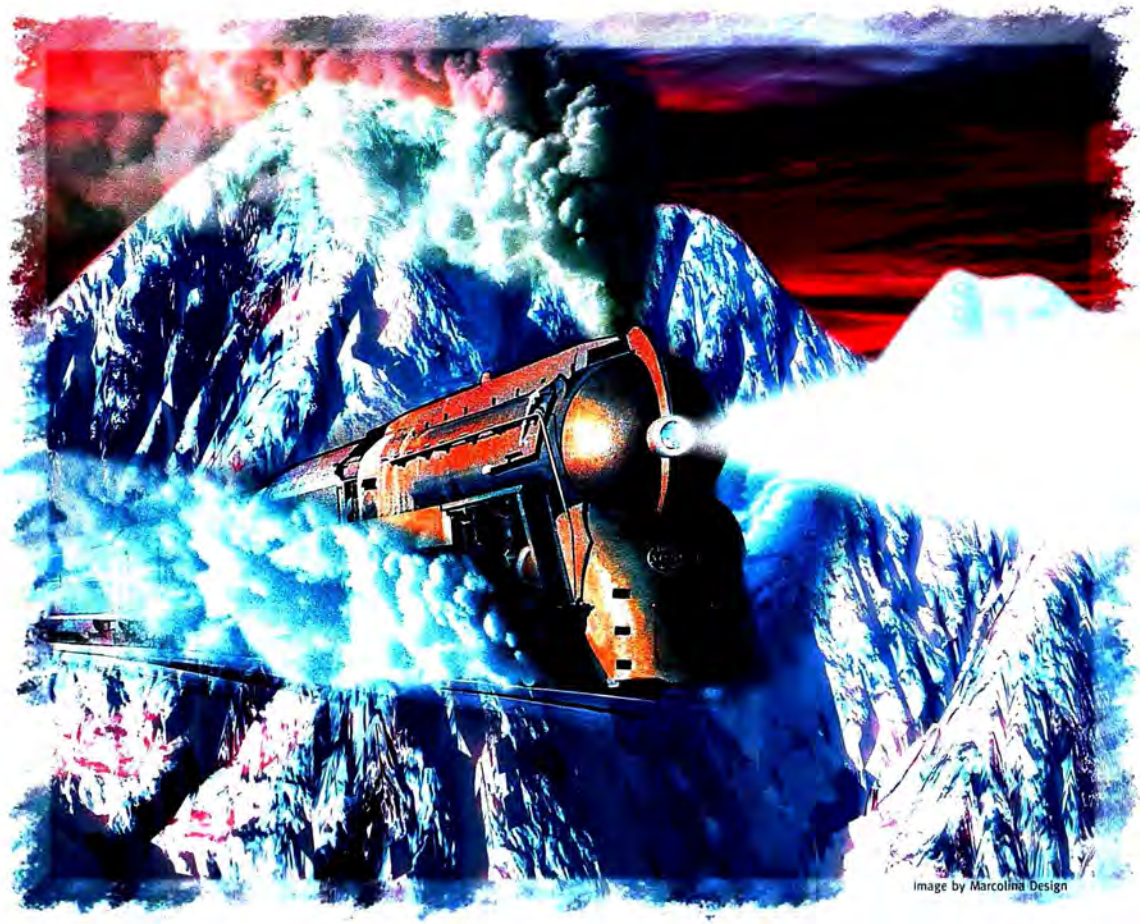
▶ Visioneer. The Palo Alto, Calif., company raised $48 million in a December public offering — twice what it expected — and credits PaperPort for Macintosh. Eric Zetlin, product line manager for the 4-year-old company, said, "PaperMax (for Windows) did reasonably well, but PaperPort did gangbusters business."

▶ Connectix Corp. The company's sales have mushroomed from $30 million in fiscal 1994 to $50 million last year and are expected to top $100 million in fiscal 1996, said marketing manager Debbie Degutis. She said the San Mateo, Calif.-based developer of RAM Doubler and Speed Doubler has also moved into a bigger building to house its expanding work force and has hired a contractor to handle additional technical support.

▶ STF. Since August, the Concordia, Mo., company has overhauled its operations, released a new version of its FaxSTF fax software and beefed up its presence in Europe and Japan, CEO Wyand said. STF has broken even after several losing quarters, he said.

The Mac industry represented fertile ground for start-ups last year. The most spectacular success was Power Computing Corp. The Round Rock, Texas-based maker of Mac clones went from zero revenues to more than $200 million, making it both profitable and the envy of upstart developers. Power said it will ship 56,000 machines in its fiscal year ending May 31. □

Clifford Colby contributed to this story.



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REVIEWS



Adobe Illustrator 6.0

★★★★½

New vintage in a familiar-looking bottle.

DON'T BE FOOLED when you first fire up the latest version of Adobe Illustrator. Version 6.0 of Adobe's powerhouse illustration program may look nearly identical to the previous release, version 5.5, but beneath the program's familiar-looking surface are welcome new treasures.

Thanks to the exploding popularity of the World Wide Web, bitmapped images rule these days. Consequently, Adobe has turned up the volume on Illustrator's bitmap support from nearly inaudible to ear-shattering. Not even Macromedia FreeHand can match the scope of Illustrator's bitmap support. And Illustrator users will no longer be inconvenienced when presented with EPS files created in FreeHand — you can now open and edit *any* EPS file that contains object information, regardless of its creator. Other version 6.0 highlights include a more powerful API for extending Illustrator's talents, built-in color-separation facilities, several new palettes, and support for a wider range of file formats.

Raster-farian

Illustrator 6.0 speaks bitmap with a vengeance. Whereas previous versions could import bitmaps only if they were saved in EPS format, version 6.0 can open or place files in a slew of bitmap file formats, including Acrobat (PDF 1.1), TIFF, Photoshop 2.5 and 3.0, Photoshop JPEG, PICT, PCX, Pixar, Kodak CD, Targa, EPS (if an EPS file has a clipping path, Illustrator will automatically convert it to a mask), and all previous Illustrator formats. The program can save files in the following formats: Illustrator, EPS, Acrobat (PDF 1.1), Amiga IFF, BMP, PCX, Photoshop JPEG, Pixar, and Targa. Unfortunately, Illustrator 6.0 can't import or export GIF files, but Adobe promised that a free GIF import/export filter would be available by the time this review appears.

What's really slick is that Illustrator now lets you create and modify bitmaps from within it. You can select any object in Illustrator and convert it to a placed bitmap, using the Rasterize command. Color-space conversion options include RGB, CMYK, grayscale, and one-bit raster image. Illustrator-created bitmaps are rectangular, but you can have the program automatically create a mask for any non-rectangular objects you want rasterized.

Once you've rasterized an image, you can enhance it by applying Illustrator's Adjust Colors, Invert Colors, Overprint Black, or Saturate filters or by issuing the Mosaic command. Even better, thanks to the program's beefed-up API, you can also apply any Photoshop-compatible filter to your image. Both volumes of Adobe Gallery Effects are included with the package, and you can even access a variety of Photoshop's own filters from within Illustrator. Unfortunately, the list of Photoshop filters you can access doesn't include the oft used blur and sharpen filters, but it does include the radial blur and lighting-effects filters.

If you choose to use the Gallery Effects filters, you'll find that you can use them only with images converted to the RGB color space — you can't use them with CMYK images. It's easy enough to convert images from one color space to another, but there is one caveat for designers of images destined for on-screen viewing, such as Web artwork or presentations. You can't define colors by using the RGB color space, which is what monitors are based on. Illustrator's color space is centered on print devices, which use the CMYK color space. True, you can bring an Illustrator image into Photoshop for final RGB tweaking, but if you choose to skip this step, you'll have to be content with eyeballing your colors on-screen.

Down the Right Path

In addition to the familiar filters you can use from within Illustrator, Adobe has provided several brand-new ones with version 6.0. The Path Pattern filter lets you apply any custom pattern to a path. Most users will apply this filter to closed paths in order to create borders and frames. You can assign pattern elements to inside and outside corners as well as to the sides of a path. When you apply a pattern to a path, Illustrator scales and sizes pattern elements to fit

REVIEWS RATING KEY	
★★★★★	OUTSTANDING
★★★★	VERY GOOD
★★★	ACCEPTABLE
★★	POOR
★	SERIOUSLY FLAWED
💣	DANGEROUS



With Adobe Illustrator 6.0's new Rasterize command, you can convert your artwork to a bitmap in Illustrator (left window) and then drag and drop it into PageMill to create a Web page (right window). The page background and the border around "Classical Music" were both created with Illustrator's new Path Pattern filter.

the path. The pattern is generated as a fully editable vector object. The new Expand command is also worth mentioning. For starters, it lets you break up a pattern into individual objects you can edit separately. Additionally, you can use it to convert gradient fills into masked objects — you specify the number of steps you want to use in the conversion.

Also new is the Ink Pen Effects filter, which provides a mind-boggling number of options for filling shapes with various cross-hatching patterns. This tool is particularly useful for creating hand-shaded effects, stippling, wood grains, and the like without the tedium of having to manually create each line and dot. It's also a good example of how Adobe has refined Illustrator's interface, replacing multiple menu choices with a single Photoshop-style dialog box, complete with a preview.

Another good example of Illustrator's more convenient interface is the Saturate dialog box — it combines the Saturate, Saturate More, Desaturate, and Desaturate More filters into a single dialog box. A slider for controlling the amount of saturation and a preview of the results are added pluses. In the same vein, the Adjust Colors dialog box has a slider for controlling each of the four process colors as well as the very handy ability to convert all selected custom colors to CMYK colors in one operation. You can even convert selected blacks to CMYK.

New Palettes

Although the new Illustrator doesn't feature the tabbed palettes introduced with Photoshop 3.0 nor a space-saving context-sensitive palette, such as FreeHand's Inspector, its palettes can now snap to the edge of your screen or document window or to each other. That makes it easier to minimize screen clutter — an especially good thing, given that the program now has four additional palettes.

The new Control palette works much like the one in Adobe PageMaker, displaying the *x* and *y* coordinates, as well as the height and width, of selected objects. You can change coordinates by typing in new values in the appropriate fields. There are also fields that affect scaling and rotating. As with QuarkXPress and PageMaker, you can enter addition and subtraction calculations in these fields and mix units of measurement. However, it would be nice if Illustrator remembered the original scale and rotation values for an object — these fields always reset to 100% and 0°, respectively, after every rescaling and rotation.

The new Align palette provides a more accessible means for aligning and distributing selected objects than did the previous version, which buried these functions in the Filters menu. The new Tools palette contains the five special plug-ins provided with the package: the Star, Polygon, Spiral, and Twirl tools as well as the new Knife tool, which lets you quickly slice objects apart simply by drawing a path through them (with previous versions, this was a multistep process — you had to use the Scissors tool to break an object apart and then the Pen tool to close the resulting open paths). In keeping with Illustrator's new extensibility, developers of third-party plug-ins can also add tools to the palette.

Because Illustrator has more keyboard shortcuts than before, the new Shortcuts palette is a welcome addition. Accessible from the Guide menu, the palette has eight screens of keyboard and mouse-click shortcuts. The Guide menu also includes pointers to the extensive online documentation provided on the Illustrator CD-ROM in Acrobat PDF format.

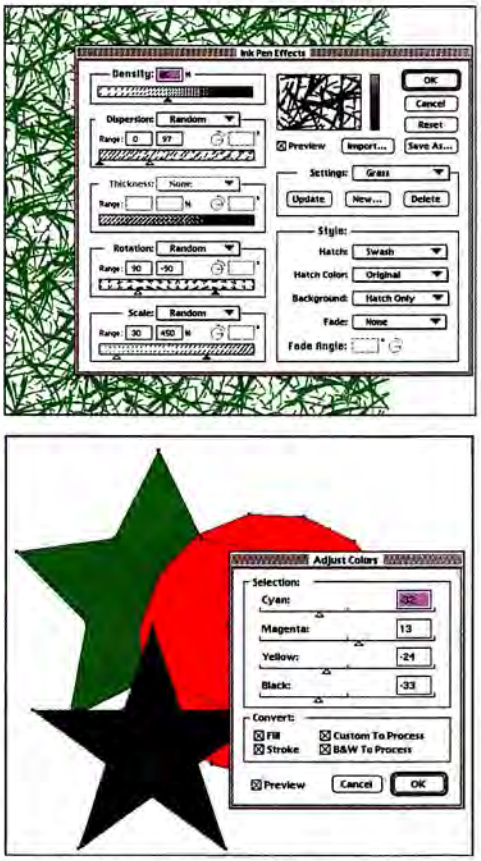
Finally, Adobe has incorporated most of the functionality of its Separator application into Illustrator: You can finally print separations, with a multitude of controls over screen angles and crop and separation marks. You can also specify whether custom colors print as spot colors or become integrated into CMYK plates.

The Illustrator 6.0 package comes with floppies and the Deluxe CD-ROM, which contains a variety of goodies, including 300 Adobe Type 1 fonts, Adobe Dimensions 2.0, Adobe ScreenReady, and Adobe Gallery Effects, as well as the program itself.

The Bottom Line

With its new plug-ins, built-in color-separation abilities, vastly improved support for raster images, and ability to edit almost any EPS file, Illustrator 6.0 is a powerful production tool. Although several items remain on our wish list — including style sheets for objects, the ability to define colors using the RGB color space, and access to *all* of Photoshop's tools from within Illustrator — we recommend the new release without reservation. / Eric Taub

Adobe Illustrator 6.0, $595 (list). **Company:** Adobe Systems, Mountain View, CA; 800-521-1976 or 415-961-4400. **Reader Service:** Circle #401.



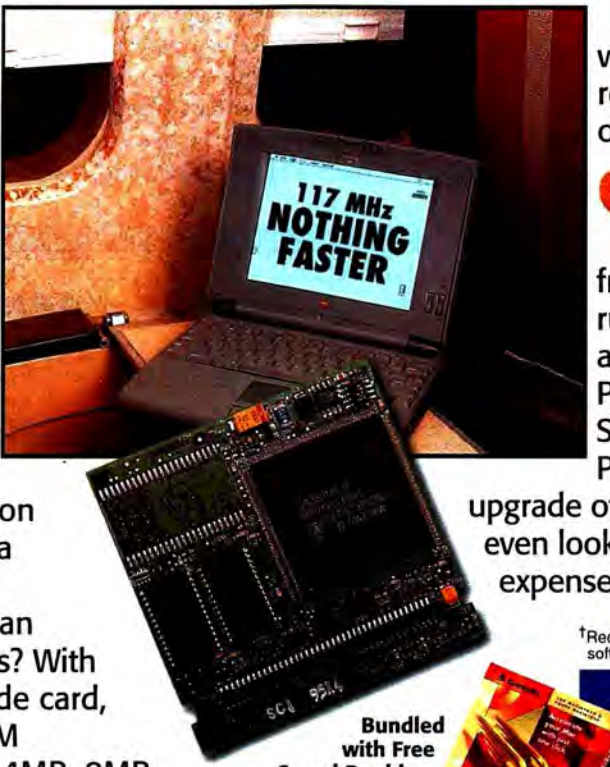
Illustrator's new Ink Pen Effects filter (top) lets you create organic-looking fills, using various cross-hatching patterns. The Adjust Colors feature (bottom) is a good example of Illustrator's newly refined interface — it organizes handy slider controls into a single Photoshop-like dialog box and lets you preview the results of your adjustments.

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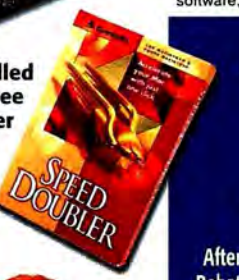
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Quicken 6 and Quicken 6 Deluxe

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Multimedia financial advice and online banking help keep your books in the black.

WITH THE BEST budgeting, money-tracking, and financial-planning features of any home money-management package, Quicken has always been and continues to be a pleasure to use. The latest version adds refinements that make the program easier to use and offers the intriguing promise of doing your banking online. A new Deluxe version on CD-ROM introduces multimedia money-management advice and a handful of handy, if somewhat awkward, supplemental programs.

Prosperity Through Knowledge

Enhancements to Quicken include new preconfigured reports, called EasyAnswer reports, that are structured like questions. You click on a radio button next to a question, such as "Where did I spend my money," and select a time period, such as last year or current month, from a pop-up menu. Quicken then generates the appropriate report. You can still use the more flexible custom reports, which aren't created in response to questions but which will let you specify any time period, using dates. Within the reports Quicken creates, you can now hide columns, add or move page breaks, change the sort order, and print to fit on a single page.

The interface for creating a budget has also been simplified. For instance, in one column, you can, say, estimate your grocery expenses by month and your automobile maintenance for the year while another column shows you how all your expenses compare against your income within a certain time period. The new Budget Status window shows you how well your real expenditures are conforming to your budget: If you're spending too much or earning too little in a category you're tracking, the window will chide you with a bright red bar in its status graph. And if you're using Quicken to watch your investments, you can now view all your investments, stocks, bonds, CDs, and more in the Portfolio window.

If online banking lives up to its promise, it alone is reason enough to upgrade to Quicken 6. According to Intuit, online banking will let you use your modem to download up-to-date information from your checking, savings, and credit-card accounts at any participating bank directly into your Quicken file. If you've already recorded checks in your Quicken register, online banking will compare your data with the bank's, alert you to discrepancies, and mark checks as having cleared; otherwise, the bank will fill out your register for you over the modem. Since online banking — due to arrive in January 1996 — wasn't available for us to test, we can't tell you if the process is as simple or complete as it's touted to be. Unfortunately, online banking won't work with a PC Card modem or with PowerBook Duos or 5x0s, although Intuit promised that it would fix this problem in early 1996.



Not ready to figure out which Quicken report will tell you what you want to know? Quicken 6's new EasyAnswer reports let you get the information you want in response to a simple question.

Deluxe Investing

As with earlier versions, you can download current stock-price information from CompuServe. If you spend the extra $20 for the Quicken 6 Deluxe CD-ROM, you'll also receive a database of Morningstar data on the performance and statistics — such as risk, fees, and growth or loss over a one- to ten-year period — of more than 4,000 mutual funds. For up-to-date information, delivered by mail on-disk, you'll have to pay $14; a year of quarterly updates costs $40.

Home Inventory, another bonus on the CD-ROM, is useful, for instance, for creating an insurance inventory of business hardware, CD collections, or antiques. This program lets you track each item's purchase price, resale value, and replacement cost. Its awkward interface, however, completely ignores standard Mac database and spreadsheet conventions. For instance, Command-Tab doesn't move you back through fields and you have to save each row before you can enter any information into the next.

Using the new multimedia features in the Deluxe version is a pleasant way to learn finance basics and is more interesting than simply reading the same information. The Ask the Experts section, for instance, has QuickTime movies of *Newsweek* columnist Jane Bryant Quinn and former *Money* editor Marshall Loeb giving contrasting opinions and advice on 26 topics, such as buying versus renting your home and borrowing against your 401(k) plan. The answers are tailored to match your financial picture, based on your answers to the brief questionnaire that opens the section. The Tips from the Team section demonstrates creative and efficient ways to use Quicken, such as for tracking frequent-flier miles.

Quicken Quibbles

The Deluxe CD-ROM, however, doesn't come with a paper manual as the disk-based version does. You either have to read the 376-page Quicken manual on-screen or shell out an additional $15 for the paper version. The manual is a model of clarity, but viewing it on-screen is awkward — as is always having to be sure you have your CD-ROM drive turned on and the Quicken Deluxe disk installed. And if you download the manual, it'll take up 17 MB of hard-disk space. We're also bothered that category names are still limited to 15 characters and description names to 30.

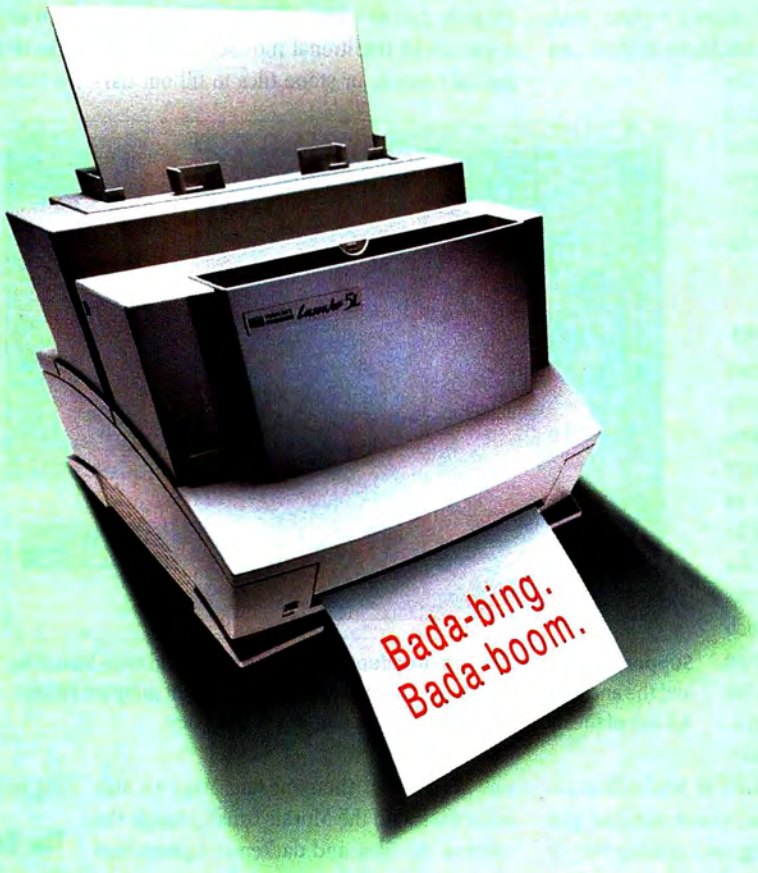
The Bottom Line

Quicken 6 is easy to learn and use, and it's the best finance program for the Mac. Usability improvements in the latest version and online banking in particular should help spendthrifts, tightwads, and everyone in between keep track of their money. / Joseph O. Holmes

Quicken 6, $39.99; **Quicken 6 Deluxe,** $59.99 (list). **Company:** Intuit, Menlo Park, CA; 800-624-6930 or 415-322-0573. **Reader Service:** Circle #402.

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Painter 4.0

★★★★½

Ancient-art techniques go digital with Fractal Design's natural-media paint program.

THE ANCIENT ART of tile mosaics enters the digital age with Painter 4.0, but the innovative natural-media paint program doesn't always draw within the traditional boundaries defining paint programs. Besides creating the typical paint-program bitmapped pictures, Painter now creates and works with PostScript vector graphics. Additionally, it lets you literally paint with tiles to create a mosaic. And, moving into another medium, Painter can now create World Wide Web-page pictures that have built-in links to other Web pages and lets you collaborate with other artists, in real time, over the Internet.

Sizing Up New Shapes

By using the new Shapes menu, you can create and import resolution-independent PostScript vector graphics such as those created by Adobe Illustrator and Macromedia FreeHand. Painter treats this kind of graphic, which it calls a shape, as a type of floater. You can edit the shapes with the Shapes-menu drawing tools, which are similar to those in Adobe Illustrator and include a Bézier-curve drawing pen and tools for selecting and editing Bézier points and blending a shape between two Bézier curves. Painter is somewhat slower with shapes than dedicated drawing programs are, so we recommend that you set preferences to draw strokes or fills only on finished shapes.

You can join vector and bitmapped graphics, using the Shapes menu, and all the painting tools and effects work on vector shapes as well as bitmapped objects. However, this flexibility has some minor flaws. You can easily convert between shapes and paths, Painter's terms for vector and bitmapped selections, but you won't find the command for converting a shape to a path in the same place as the command for converting a path to a shape. Also, if you use a painting tool on a shape, you'll no longer be able to manipulate the shape's Bézier outline.

Each version of Painter introduces a new technique or two not available in any other graphics program. Painter 4.0 is no exception, since it introduces a new brushing technology called Mosaic. The Mosaic brush should not be confused with mosaic filters, which only convert an image into a set of colored blocks. The Mosaic brush in Painter actually lays down tiles, based on width, length, and grout settings you specify. If you brush close to a row of tiles, the resulting tiles the brush lays down are only partial-width tiles. This mimics the approach of traditional mosaicists, who cut partial ceramic or stone tiles to fill out narrow sections of their mosaic. You can also erase tiles with the Mosaic brush, change the color of the tiles, and darken or lighten tiles or a selection of tiles.



Support for resolution-independent vector graphics, World Wide Web links, and the ancient art of tile mosaics make natural-media paint program Painter 4.0 one of the most versatile graphics programs you can buy.

To use the Mosaic brush, you have to go into Painter's new Mosaic mode. In this mode, the mosaic tiles are vector images, so you can shrink or expand an image without losing quality. You can't, however, zoom into an image to examine your tiling handiwork while you're in the Mosaic mode. Outside the Mosaic mode, you can clone an image created in one medium and see how it would look in a different medium: For instance, you could turn a colored-pencil drawing into an oil-painting illustration. You can't, however, clone an image as a mosaic, although you can use the Make Tesselation command to divide your image into small triangles, cracks, and pieces, which you can then paint into tiles. As with all Painter features, you have 32 levels of undo.

Internet Artistry

If you use Painter images on your Web page, they'll now also easily double as links to other Web pages. If you type a URL address into the floater information dialog box of a GIF or JPEG floating object, when you save the object, the address will be placed within the object. Painter creates a Common Gateway Interface that designates the object as a hot-linked region when you place it in your Web page.

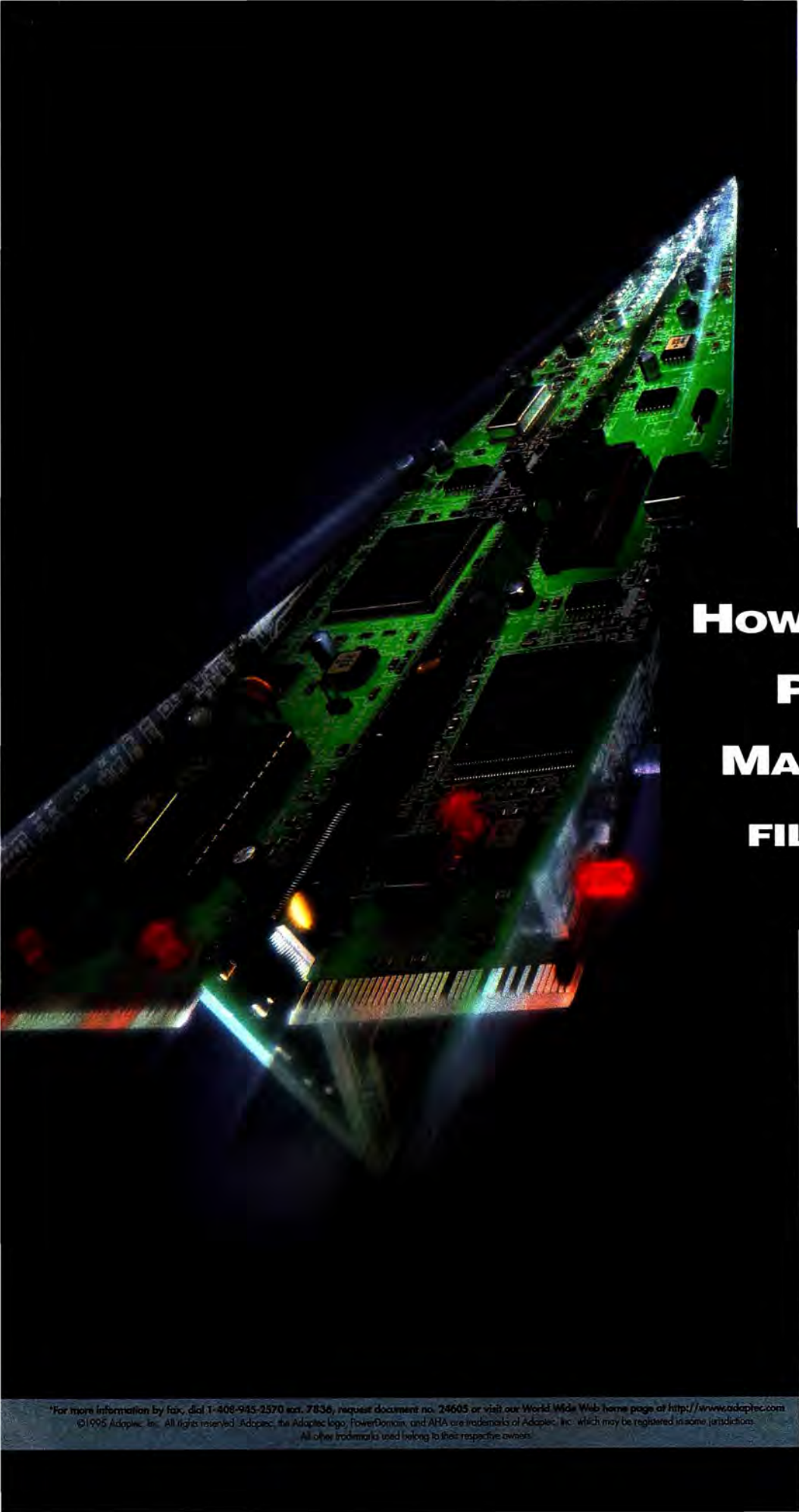
You can now collaborate with other Painter 4.0 artists over the Internet. All you need is the IP address of a central computer on which a final image will be saved. All artists sign into the collaboration session, using the IP address. A simple status window that looks like a traffic signal gives one artist control of the painting as the others watch it take form on their screens. This feature should be particularly useful for instruction.

Painter 4.0 has several minor enhancements. Some palettes have been combined, so the interface is less cluttered. The Apply Surface dialog box now has a Softness slider, which lets you blur a surface, and a Reflection slider, which make surface reflections more or less blurry. Painter's documentation has also improved. The 400-page manual now explains Painter's more complex features and has larger pages and more illustrations. There's also a 90-page full-color tutorial covering numerous basic and new features.

The Bottom Line

The vast array of painting and drawing tools in Painter 4.0, including some not found in any other art program, lets you create just about any look or effect you want. Now you can begin your paintings with precise vector-based drawings and then turn them into masterpieces with the excellent painting tools. If you're a creative professional, you should have Painter 4.0 in your art arsenal. / Sean Safreed

Painter 4.0, $549 (list). **Company:** Fractal Design, Aptos, CA; 800-297-2665 or 408-688-5300. **Reader Service:** Circle #403.





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Retrospect and Retrospect Remote 3.0

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Backing up your data just got a whole lot easier.

NOT ABOUT TO REST on its laurels, the longtime leader in Mac backup software sports a new look and a plethora of new features for individual as well as for networked users. Retrospect, whose complex interface has been its only blemish, now has a friendlier face, with dialog boxes and menus that are easier to work with and understand. This is no small achievement, considering that version 3.0 is packed with new features.

Off-Line but Not Forgotten

Retrospect can automatically back up files on all networked Macs at regular intervals to tape or other media if the Macs have the Retrospect Remote control panel installed. In previous versions, the contents of PowerBooks, which weren't necessarily on the network at backup time, were neglected, but the new Backup Server feature in Retrospect 3.0 polls the network, looking for files that need to be backed up. When a computer whose contents haven't recently been backed up connects to the network, the Backup Server feature finds it and Retrospect backs it up. You can also request a backup via the Backup Server feature, and Retrospect will either back up your computer's files immediately or will back them up at the next backup time designated by the administrator. The Backup Server feature can poll continuously or only during times when you want backup to take place.

Locating and managing backups for a large number of users can be a challenge, especially if you need to change the backup schedule. With Retrospect 3.0, you can create backup groups. A backup group consists of users whose backup needs are the same, such as traveling salespeople whose PowerBook contents should be backed up instantly when the machines connect to the network. When you want to change the backup schedule, you have to change only the script for the group. Any new users added to a group will have their files backed up automatically, according to the group's schedule. You can also create backup folders that let you back up specific files — for instance, you might create a folder for your finance department's spreadsheets and schedule the folder for frequent backup. Retrospect scripts can back up folders or all of a group's files just as they do a single volume's or user's files.

If you check the new Remote Desktop option, Retrospect 3.0 will back up the files in any volume mounted on a networked user's computer, rather than backing up volumes by name. In previous versions, if a volume's name was changed, it would not be backed up until the administrator reconfigured the backup script. All these new features make backing up a workgroup's data more manageable, especially in large organizations.

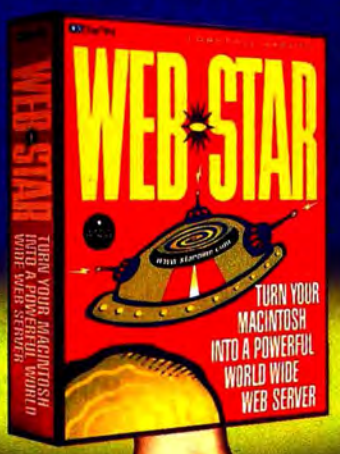
Scripting Made Easy

Novice users will appreciate EasyScript, which takes a step-by-step approach to automating backup. A series of dialog boxes explains the backup process and asks questions about how you want to protect your data. The result is a set of backup options and





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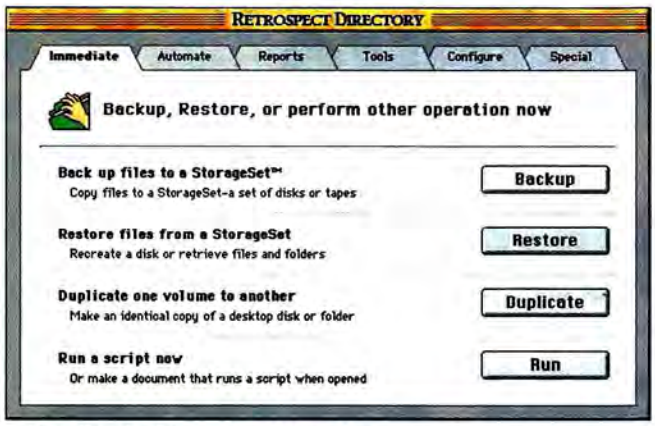
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CIRCLE **69** ON READER SERVICE CARD



A friendlier-looking main window gives you quick access to many of the new features in Retrospect 3.0.

a schedule that will back up your system at regular intervals. Once you've answered all of its questions, EasyScript creates a backup script optimized for your needs.

Far from creating bare-bones backup scripts for individual users only, EasyScript can set up network backup and can automatically create scripts that rotate your backup media. Creating scripts that back up data onto certain sets of backup media on, say, alternating days or weeks is much simpler with EasyScript than it used to be with earlier versions of Retrospect, with which you had to create them from scratch. Once you have created an EasyScript backup script, you can use and modify it just as you would any other backup script. And you can still create your own scripts from scratch if you need to use advanced features, such as the Backup Server feature, that EasyScript does not support.

With the new Duplicate feature, you can back up one volume to another as if you were copying it via the Finder and you can restore a volume in the same way. All other Retrospect backups create backup files that are accessible only with Retrospect. Using Duplicate is a great way to copy a large folder onto a SyQuest cartridge or to synchronize files on your desktop machine with those on your PowerBook after a trip. Duplicate is especially useful for single backups, since it enables you to take advantage of Retrospect's speed and scripting features without having to use a file format that requires dedicated backup media.

The Bottom Line

Retrospect dominates the Macintosh market — no other backup utility can match its breadth or depth. And it just keeps getting better, with the addition of features that please network administrators as well as individual users. Dantz's tech support is top-notch. The company seems determined to make sure Retrospect works with all known backup media: The list of tapes and cartridges that Retrospect supports continues to grow. Furthermore, Retrospect 3.0's new modular architecture lets Dantz write and distribute plug-ins — such as the recently released CD-R plug-in — that let users quickly and inexpensively adopt new technologies without having to give up their backup software. / Shelly Brisbin

Retrospect 3.0, $249; **Retrospect Remote 3.0** 10-user pack, $449 (list). **Company:** Dantz Development, Orinda, CA; 510-253-3000. **Reader Service:** Circle #404.

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CIRCLE 74 ON READER SERVICE CARD

How to make a full recovery when disaster strikes.

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1. *How to get disaster insurance for your data.*

Data loss will happen to half of us this year: meteors, fire, theft, earthquakes, power surges, hard disk failure, human error—it goes on and on. But with Retrospect and a solid backup strategy, nothing can harm your data.



2. *Before you back up.*

Figure out what you'll back up to—removable cartridges or a dedicated backup drive. For lots of files, you want a device with the capacity for unattended operation—say DAT, DLT, or an autoloader.

3. *How to back up if you're a small company.*

Retrospect will show you the best way. The EasyScript™ feature sets up a backup strategy from your answers to a few simple questions, then carries it out automatically to whatever media you select.

4. *How to back up if you're a big company.*

The answer is Retrospect Remote®, our network backup product. Use a set schedule or the more flexible Backup Server™ which automatically backs up Macs with the oldest backup first—ideal for PowerBooks that appear and disappear off the network. The bottom line: Retrospect Remote covers your network like a blanket.

5. *How to laugh in the face of danger.*

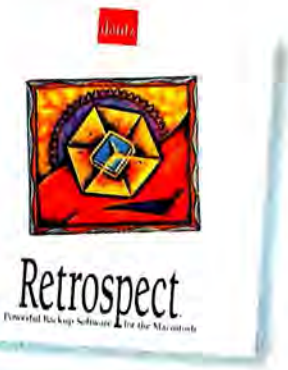
We're not suggesting standing on the top of the building during a lightning storm. But when disaster strikes, Retrospect can restore whatever you're missing—files from your latest backup, older files, or the entire hard drive.

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dantz® *To go forward, you must backup.®*

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FWB SledgeHammer-7000FMF PCI II

4½

ProMax PR2-16828WP

4½

RAID 0 systems deliver zippy data throughput and access.

THUMB TWIDDLING has advanced to an art among many Photoshop and digital-video pros, who spend way too much time watching the progress bar as their applications open, process, and save large files. If *your* thumbs are getting a workout, you may want to consider investing in a RAID 0 system, which provides faster access to stored data than a stand-alone hard drive. Two of the latest RAID offerings are the $9,439 FWB SledgeHammer7000FMF PCI II and the $8,795 ProMax PR2-16828WP. Each system supports RAID Level 0 and Level 1, uses two channels for optimal speed, and incorporates a total of four drives. Your storage-capacity requirements and the types of applications you run will determine which system is right for you.

FWB SledgeHammer7000FMF PCI II

FWB's newest system uses two PCI SCSI-2 JackHammer cards, each with a 16-bit Fast-and-Wide interface. The total capacity of its four hard drives is 7 GB. A two-card RAID system takes up two PCI slots, of course, but you get the speed advantages of a two-channel system.

The system's four Fast-and-Wide drives are stored in two large cases, two drives to a case. The cases aren't designed to be hot-swappable, which means that you can't remove a failed drive from one of the cases without powering down the system. And removing a drive necessitates taking the case apart.

The system's software component is the FWB RAID ToolKit software, which supports RAID 0 and 1 (RAID 0 is the fastest of all the RAID levels) and boasts an easy-to-use interface that makes system setup a snap. The documentation is thorough and well organized.

ProMax PR2-16828WP

The ProMax array offers more flexibility for replacing failed drives and for upgrading the system. For starters, its two 16-bit Adaptec AHA-2940W PCI cards are built to Ultra SCSI specifications, so you can easily upgrade to the new interface when it becomes standard. Adaptec plans to provide free ROM upgrades on its BBS.

Like FWB's system, the ProMax array consists of two cases, each of which contains two Fast-and-Wide drives. But the ProMax system offers a higher capacity — each case houses two 4-GB Conner drives, for a total capacity of 16 GB. The system is not hot-swappable, but the ProMax cases have a slick design that makes it easy to get to the drives if one fails — the case's front panel opens, and you can reach in, unlatch the failed mechanism, slide it out on runners, and slide in a new one.



Removing a failed drive from the ProMax PR2-16828WP RAID system (left) is a breeze, thanks to its well-thought-out case design. The FWB SledgeHammer-7000FMF PCI II's strength is fast throughput of large files.

Setup is similar to the FWB system's. The ProMax array comes with Trillium Research's easy-to-use Remus RAID software. For more money, you can also opt for RAID 4 and 5 support.

Testing

To test the speed of the FWB and ProMax systems, we ran them through a series of Photoshop and MacBench 3.0 tests. Our test platform was a Power Mac 9500/132 with 32 MB of RAM.

Our Photoshop tests consisted of two tasks that are common in Photoshop 3.0.4 — opening an 80-MB file and rotating an image. In these two tests, the FWB and ProMax systems finished neck and neck, as they did when we performed a Finder copy of the test file. If you're an imaging professional and you spend most of your time working with Photoshop, you'll save considerable time with either of these systems.

In our MacBench 3.0 tests, we found that the FWB array boasted the faster throughput of the two systems, making it a good choice for users of digital-video applications that require fast, continuous throughput of large files. In our 1,024K Sequential Write test, the FWB array pumped data through at a rate of 25 MB per second, compared to 19 MB per second for the ProMax array. In our 512K Random Write test, the FWB system again came out on top — we clocked it at 205K per second, compared to 147K per second for the ProMax array.

The Bottom Line

For those who require a RAID system with gargantuan capacity, the 16-GB ProMax PR2-16828WP is a good deal. Ultra SCSI support, a RAID 4 and 5 option, and a thoughtfully designed case that makes drive removal easy are additional pluses. On the other hand, if speedy data throughput for large files is at the top of your list of requirements, the FWB SledgeHammer7000FMF PCI II will fill the bill. / Roman Loyola

FWB SledgeHammer7000FMF PCI II, $9,439 (list). **Company:** FWB, Menlo Park, CA; 415-325-4392. **Reader Service:** Circle #405.

ProMax PR2-16828WP, $8,795 (list). **Company:** ProMax Technology, Irvine, CA; 800-977-6629 or 714-727-3977. **Reader Service:** Circle #406.

PHOTOGRAPHY / LON CLARK

MacInTax Deluxe

4½

Kiplinger TaxCut

4

Personal Tax Edge

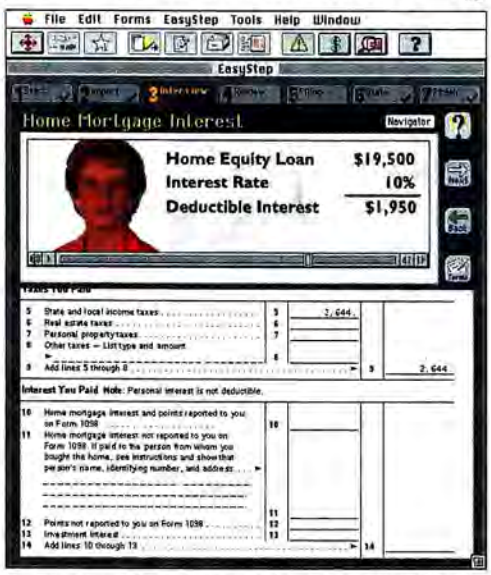
2

Three tax-preparation programs vie to help you fill out your tax return.

TAX SEASON IS, if not fun, at least a bit less stressful for Mac users, thanks to the availability of tax-preparation software. MacInTax Deluxe, Kiplinger TaxCut, and Personal Tax Edge use similar methods to help you prepare your return. Each lets you import data from the previous year's return and from popular personal-finance programs. And all three use a detailed interview-and-audit process. They gave us identical results when we used them to calculate our federal return, but the programs differ dramatically in three major areas: sophistication of design, breadth and depth of information, and level of commitment to the Mac.

MacInTax Deluxe

MacInTax Deluxe, the CD-ROM version of the popular tax-preparation program, is packed with useful tax information. As in previous years, MacInTax's EasyStep interview leads you carefully through a series of clearly stated queries about your tax situation. The program then places the information you give it into the appropriate federal tax forms and schedules and automatically makes any necessary calculations. This year, a new button in the EasyStep window lets you jump directly to any question; you no longer have to cycle through an entire section of the interview just to review or change the information you've entered.



Tax experts give you practical tax tips as you fill out your tax return using the MacInTax Deluxe CD-ROM.

Mary Sprouse, a former IRS auditor, and Marshall Loeb, former editor of *Money* magazine, appear frequently in QuickTime videos sprinkled throughout the program. They give you specific, substantive advice and encourage you to explore all the legitimate deductions you are entitled to.

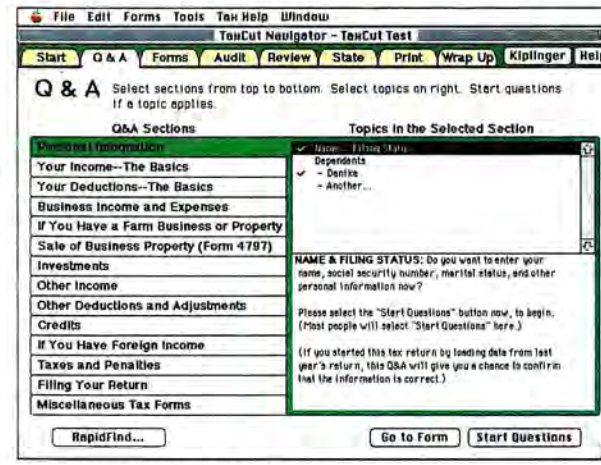
In addition to the standard IRS instructions and line-by-line tax help, MacInTax Deluxe includes electronic versions of Loeb's *Money Income Tax Handbook* and Jeff Schnepper's *How to Pay Zero Taxes.* According to Intuit, in the final version (not available for review at press time), all hypertext links in the interview will take you directly to related citations in the books; some, but not all, of these hypertext links were functional in the Head Start version of MacInTax Deluxe we reviewed.

A floppy-disk-based version of MacInTax, without the video tips and electronic books, is also available. Special business editions of MacInTax with business-oriented tax tips and strategies, including electronic versions of the IRS' *Tax Guide for Small Business* and Nolo Press' *Tax Savvy for Small Business,* were not available for review at press time but should be shipping now.

Kiplinger TaxCut

You can buy an information-packed CD-ROM version of Kiplinger TaxCut for Windows, but Mac users have to make do with a floppy-disk version that has not changed much from previous years' versions. True, Kiplinger tax advice, earlier available only in a special edition, is now integrated into all versions of the program; on the other hand, H&R Block offices won't be providing support for Kiplinger TaxCut, as they did last year. Also, Kiplinger TaxCut has only two state editions, for New York and California. In contrast, MacInTax now has state editions for all 44 states that require a return, plus the District of Columbia.

Kiplinger TaxCut does have some solid features. The program's unique overview window shows you the major sections of your interview on the left, and the topics and information for each section appear on the right. You answer the interview questions, much as you do in MacInTax, in the top half of Kiplinger TaxCut's Q&A window; the bottom half displays the actual IRS form or worksheet. This arrangement is effective, allowing you to see your data appearing on the forms without leaving the interview. However, with Kiplinger TaxCut, you often have to scroll through the narrow interview window to see all the text. More annoying is the program's lack of adherence to basic Mac protocols — for instance, you can't cut and paste between entry fields and highlighted buttons don't trigger when you press the Return key.



Kiplinger TaxCut's split Q&A window lets you jump among tax-related topics easily.

Plentiful, intuitive navigational aids help you jump among forms, interview topics, and support. The tiny information buttons nestled up against many of the data-entry fields are particularly useful. Clicking on them takes you directly from the Q&A interview to the excellent Kiplinger advice. Kiplinger TaxCut's audit process is also particularly good. Once it has calculated your return, Kiplinger TaxCut displays a list of

items you should check — allowing you to decide which ones you would prefer to examine first.

Personal Tax Edge

Priced at $19, Personal Tax Edge delivers the basics with few frills. Although it capably helps you complete your tax return, Personal Tax Edge is saddled with a clunky interface that's hampered by huge, ungainly buttons, text squeezed into tiny windows, and a ton of wasted space. Both MacInTax and Kiplinger TaxCut let you enter information directly into the tax forms but recommend against doing so, since it's easy to miss an important field. Personal Tax Edge is the only tax-preparation program that makes you fill out the forms directly. Depending on your responses to its questions, Personal Tax Edge guides you to the appropriate form but frequently leaves it up to you to figure out which fields need to be filled in or left alone. An effective, built-in audit function may catch some of your mistakes, but the impression we had was of a product short on design sophistication and information. An electronic version of the *J. K. Lasser Tax Guide* wasn't in the preliminary release we reviewed but should be a great addition to the final version shipping now. Personal Tax Edge has $19 state editions, available for 43 states.

The Bottom Line

All three preliminary versions of the tax-preparation programs delivered identical results, down to the penny, when we put them through their paces. However, only MacInTax Deluxe, with its excellent design and information, lets you spend your time working on your taxes instead of wrestling with an awkward interface. Still, there's no guarantee things won't go awry with a complex return, as MacInTax's calculation snafu last year demonstrated. Our advice? Get an early start on your taxes, so you won't be caught up in tech-support bottlenecks late in the game.

/ David Rossiter

Kiplinger TaxCut, $35; state editions, $24.95 each (estimated street). **Company:** Block Financial, Kansas City, MO; 800-235-4060 or 816-751-6000. **Reader Service:** Circle #407.

MacInTax Deluxe CD-ROM, $49; state editions, $30 each (estimated street). **Company:** Intuit, San Diego, CA; 800-964-1040, ext. 6017, or 619-453-4446. **Reader Service:** Circle #408.

Personal Tax Edge, $19; state editions, $19 each (list). **Company:** Parsons Technology, Hiawatha, IA, 800-679-0670 or 319-395-9626. **Reader Service:** Circle #409.

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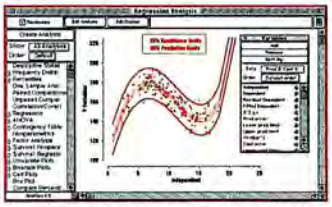
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Minolta QuickScan 35

Minolta's first desktop slide scanner comes up short.

FOLLOWING CLOSELY on the heels of newly upgraded slide scanners from Nikon and Polaroid, Minolta's very first entry in the slide-scanner arena clearly favors speed over image quality. Like its two comparably priced rivals, the $1,995 Minolta QuickScan 35 offers a compact and inexpensive alternative to high-end scanners for those who do not require the highest-quality scans. But Minolta's scanner doesn't quite measure up to the competition when it comes to capturing image detail at an acceptable rate. And it lacks truly useful software controls.

Jack Be Quick

The QuickScan 35 scans images at a maximum resolution of 2,820 dpi and handles mounted 35mm slides and unmounted 35mm positive and negative film. You can load mounted slides individually into the slot in the scanner's front or use the supplied six-image strip loader for unmounted slides or negatives.

Setting up the scanner is simple, but you'll quickly notice that its two SCSI-2 ports are nonstandard and that it comes with an equally nonstandard SCSI cable. This is a real problem if you want to daisy-chain the scanner. Fortunately, Minolta plans to make an adapter available that will allow standard cables to connect to the scanner.

You have a pair of software options for controlling the scanner — Minolta's basic QS Utility or a more full-featured Photoshop plug-in. The Photoshop plug-in provides a minimal set of tools for color correction and cropping, but it truly pales when compared with the software controls of competing scanners from Nikon and Polaroid. For optimal scans with a Power Mac, Minolta recommends allocating at least 20 MB of RAM to the Photoshop plug-in and at least 8 MB of RAM to the QS Utility.

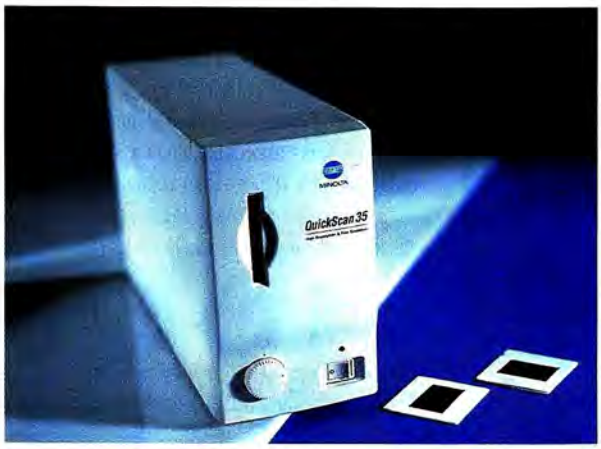
You can choose from three scanning modes. In Standard Mode with either a Power Mac 6100/60 with 42 MB of RAM or a Power Mac 8100/110 with 74 MB of RAM, scans took us only 45 seconds or less. Image quality was pretty good, but some details were lost in highlights and shadows. We were able to capture the most detail by scanning in Pixel Mode at the highest resolution, but this scan took about 7 minutes! Competing scanners from Nikon and Polaroid deliver images just as good in a fraction of the time.

Other sore points are Minolta's documentation and tech support. Although the QuickScan 35 is not difficult to use, it would be helpful to have good instructions on how to achieve quality scans without hours of experimentation. And as we went to press, technical support for the scanner was virtually nonexistent.

The Bottom Line

The Minolta QuickScan 35 scans images quickly and easily. But when the QuickScan 35 is set to capture images at an acceptable speed, it doesn't capture as much image detail as its competitors. And software controls are minimal by comparison. / Bob Steinberg

Minolta QuickScan 35, $1,995 (list). **Company:** Minolta, Ramsey, NJ; 201-825-4000. **Reader Service:** Circle #410.



The Minolta QuickScan 35 desktop slide scanner is capable of capturing good image detail but not at an acceptable speed.



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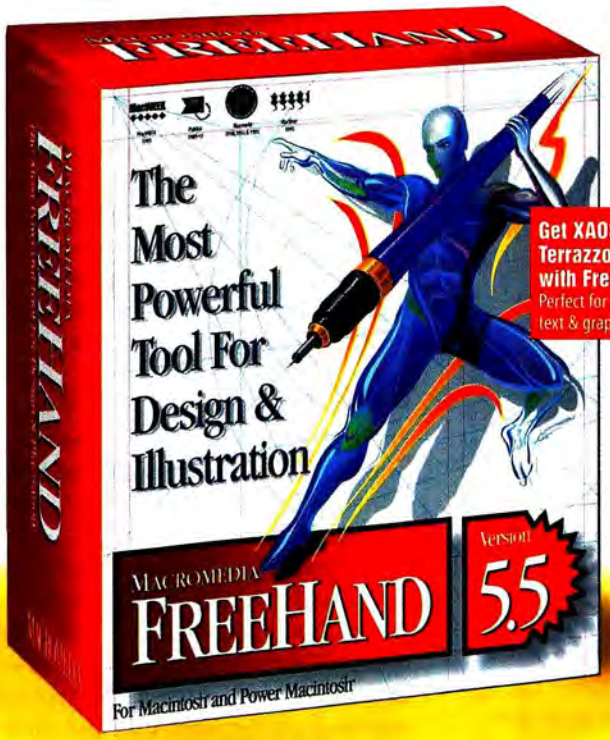
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MacUser
COMING SOON:
96
JUNE

Photoshop at Top Speed
Itching to push the speed limit on Adobe Photoshop? Brake for the June issue of MacUser. Bruce Fraser, who wrote the book on Photoshop — literally, with *Real World Photoshop* — gets you up to speed in this issue. MacUser Labs tests accelerator cards, various memory configurations, RAID products, and multiprocessor machines, such as DayStar's Genesis, to discover which options give the best performance. Don't miss this session with the speed demon of the Photoshop world.

3-Star 3-D Software
An artist is as good as his tools. And digital artists have an awesome array of 3-D tools for modeling, rendering and animation. In the June issue, David Biedney, special-effects expert, does a comprehensive round-up of the most current 3-D software packages available. Each product is mouse-rated based on ease-of-use, features, and speed. Get a close look at all the dimensions of 3-D software.

Digital Photo Fun
At last, digital photo products are affordable for home users. MacUser editors zoom in on digital cameras, image-editing software, printers, and scanners in the June issue. With easy-to-use tips for capturing, enhancing and printing photos, the possibilities for creative photo projects are endless and exciting. Your photo album may never be the same.

JUNE AD CLOSE:
TUESDAY
MARCH 19, 1996

form•Z 2.7.5

★★★★

Render as well as sculpt with this intricate 3-D modeler.

AN UNPARALLELED SELECTION of modeling tools has made form•Z one of the best 3-D modelers for the Mac, but earlier versions of the program had only limited rendering capabilities — a real disappointment in a $1,995 program. form•Z users who wanted to apply realistic surfaces to their 3-D designs had to shell out even more money for a rendering program, such as Ray Dream Designer, Strata StudioPro, or Electric Image's ElectricImage. Now form•Z finally has its own capable rendering engine, which can render full texture maps, using flat, Phong, or ray-tracing rendering algorithms.

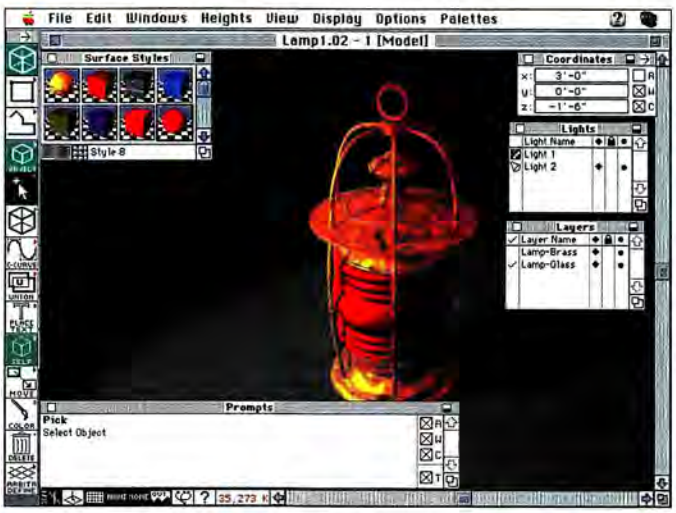
Cubes of Color

One of the first hints that form•Z now has a built-in renderer is the new Surface Styles palette, which replaces the Colors palette. The Surface Styles palette has colored 3-D cubes that represent textures as well as colors. To add a texture to the palette, you double-click on one of the cubes. Using pop-up menus in the dialog box, you can select the surface color, reflection, transparency, and bump map for your texture and can define its size. If you'd rather use a predefined texture, you can select one of the included procedural textures or you can import a bitmapped texture you've created in another program. Although the texture-designing controls of form•Z are powerful, they don't include specular maps or glow maps.

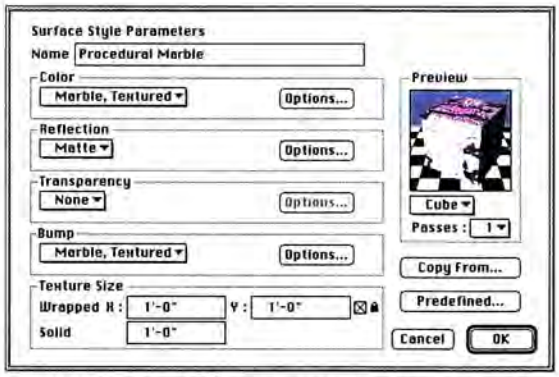
To apply a texture to an object, you use the Color tool, just as you did with earlier versions of form•Z. However, to position the texture, you have to trek through several dialog boxes, and you have to know how you want to apply the texture in order to select the right tool. For instance, if you want to control the mapping type, orientation, scaling, and rotation of your texture, you have to use the Texture Map tool; if you want to apply a texture as a decal, you use the Decal tool. It can take a while to find out where all the texture tools you need are located. Unfortunately, you generally have to place and tweak textures by using numerical coordinates; few of these tools have interactive controls.

And There Was Light

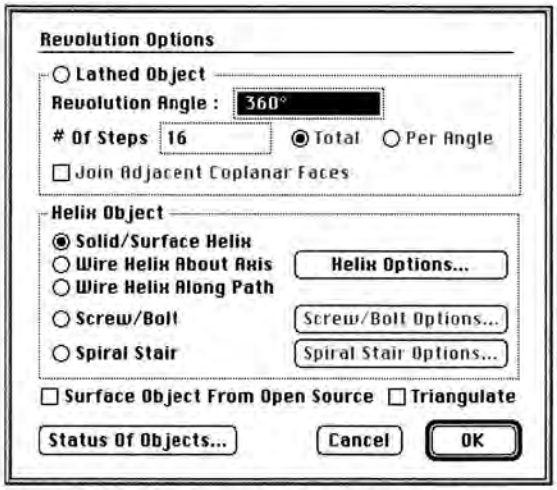
To complement the new rendering features, form•Z has a comprehensive set of lighting controls. The new Lights palette lets you create an unlimited number of distant, point, cone, and natural lights. In the Light Parameters dialog box, you can set a wide variety of parameters for each light. For instance, using sliding bars, you can define the falloff lines — specifically the inner and outer circles — for a cone light and define how soft- or hard-edged you want your shadows. You can position the light by defining its location on the 3-D axis, using numbers, or you can position it interactively with your mouse. You can also ask form•Z to show the light source in your final rendering. We particularly liked the ability to direct a light to a specific point on your object, called the Center of Interest. You'll find this lighting feature only in form•Z and in Electric Image's ElectricImage rendering/animation program.



The sophisticated 3-D-sculpting tools in form•Z are now complemented by a full-featured rendering engine.



You can create and define textures and surfaces in form•Z 2.7.5 with the same advanced degree of control you have for creating and sculpting 3-D objects.



form•Z is the only 3-D modeler that lets you twist and spiral outlines as well as revolve them around a lathe.

Overall, we liked the quality of form•Z's renderings. If you use full ray tracing, the best rendering option available, you can successfully get subtle reflections and soft shadows, although the texture maps themselves are sometimes slightly blurry.

The wide variety of 3-D modeling tools in form•Z ranges from typical tools for taking 2-D images into the third dimension, such as the Lathe tool and the Extrusion tool, as well as more-esoteric, complicated tools for free-form sculpting of the object mesh. Each one of form•Z's modeling tools has its own broad subset of functions. For instance, not only can the Lathe tool rotate an outline along an axis in order to create a 3-D shape but it can also spiral the outline around the lathe, using parameters you set to control the degree of rotation.

The 3-D-geometric-shape tools in form•Z create solid objects, perfect for sculpting, especially if you take advantage of form•Z's Boolean operations, which let you use one object to subtract volume from or add it to another. Besides having tools for the more standard Boolean operations, form•Z also has Boolean Cut and Stitch tools. With these, you can cut apart a hollow surface object and then stitch the pieces to another object or use them to slice and carve.

Unfortunately, form•Z's selection of 2-D shapes and drawing tools isn't as broad as its set of 3-D functions. If you want to use complicated 2-D shapes and profiles in form•Z, you're probably better off creating your 2-D shapes in a dedicated drawing program and then importing them into form•Z in either Adobe Illustrator or PICT format.

You'll have to spend a good deal of time with form•Z's extensive tutorial and experiment with the program for several hours before you can really use it, because it has some unusual interface conventions. For instance, if you want to apply an operation to an object, you either have to select the menu-bar command or select the tool first and then click on the object. If you want to select the object or objects first, you have to use form•Z's Pick tool; you can't simply click on an object to select it.

Overall, we were pleased with form•Z's speed, both for modeling and for rendering. Nevertheless, we recommend running it in native mode on a PowerPC machine that has at least 16 MB of RAM — more if you're creating large or complex models.

The Bottom Line

If you're serious about 3-D design on the Mac, you must consider form•Z. Even though its interface can be confusing at times, form•Z has modeling power — especially now that it has its own, built-in rendering engine — that just isn't available with any other 3-D modeler or renderer for the Mac.

/ Ben Long

form•Z 2.7.5, $1,995 (list). **Company:** auto•des•sys, Columbus, OH; 614-488-8838. **Reader Service:** Circle #411.

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Captivate 4.5

★★★★

Point, shoot, click, and paste with this handy trio of graphics utilities.

A NEW NAME, a lower price, and two new sidekicks grace Mainstay's upgrade to its top-notch screen-capture and scrapbook utility. Captivate is really a bargain-priced suite of tools for multimedia-file management. The suite consists of Captivate Select, the screen-capture utility formerly called Capture; Captivate View, a graphics viewer that can also manipulate pictures; and Captivate Store, a scrapbook utility formerly sold separately as ClickPaste.

Screen Snapshots

The screen-capture features found in the Captivate Select extension are virtually the same as those in Capture. You take a picture of your Mac screen by pressing a key combination you've defined. If you want, you can select a portion of your screen, with or without the cursor visible, using Captivate Select's selection rectangle. Captivate Select will save the selection to the Clipboard or the Scrapbook — or as a PICT, GIF, MacPaint, or TIFF 4.0 or 5.0 file — to any folder on your hard disk.

Captivate Store streamlines the process of pasting plain text; PICT files; QuickTime movie files; and snd resources, such as system sounds, into documents and presentations. To quickly paste a file, you place your cursor in the target document and activate Captivate Store by using a key combination. When you click and hold down the mouse button, a hierarchical menu appears, showing the contents of a folder you've designated in the Captivate Store Apple-menu item. You can view text and PICT files, play QuickTime movies, and hear snd resources when you select them as you keep the mouse button pressed down. When you release the mouse button, Captivate Store pastes whichever file you've selected into your open document at your insertion point.

Captivate Store is particularly useful if you have a few dozen files, such as corporate logos and boilerplate text, that you use regularly in the documents you create. However, if you have hundreds of graphics files, you'll be better off using a cataloging program, such as Adobe Fetch or Apple PhotoFlash. Captivate Store lets you see only one file at a time. With a cataloging program, you can see several files at once and search for the files you want by using keywords or other identifiers. Furthermore, a cataloging program doesn't limit you to just a few file formats or the contents of one folder, as Captivate Store does.

If you don't have a graphics program for editing your screen shots — or if you just need a quick, fast fix for them — you can use Captivate View to scale, rotate, flip, and crop screen shots as well as PICT, MacPaint, TIFF, or GIF files. Captivate View can even convert a graphics file in one file format into any other file format it supports.

The Bottom Line

Captivate Select has always been a terrific screen-capture extension. Now that it's bundled with a useful graphics viewer and a limited but handy access-and-paste utility and has a lower price, it's a bargain to boot. / Shelley Cryan

Captivate 4.5, $89.95 (list). **Company:** Mainstay, Camarillo, CA; 805-484-9400. **Reader Service:** Circle #412.



CIRCLE **22** ON READER SERVICE CARD

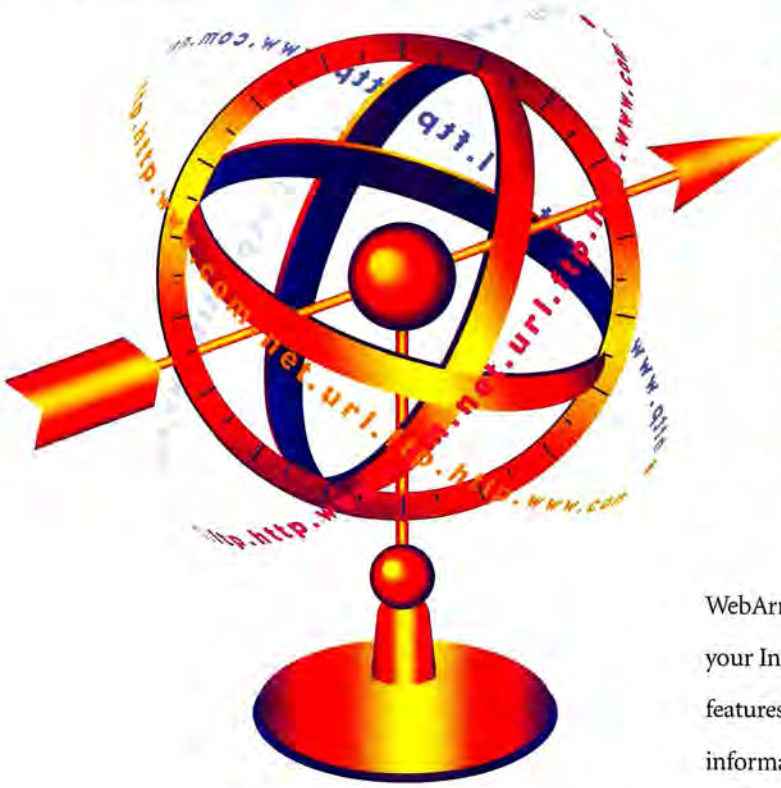
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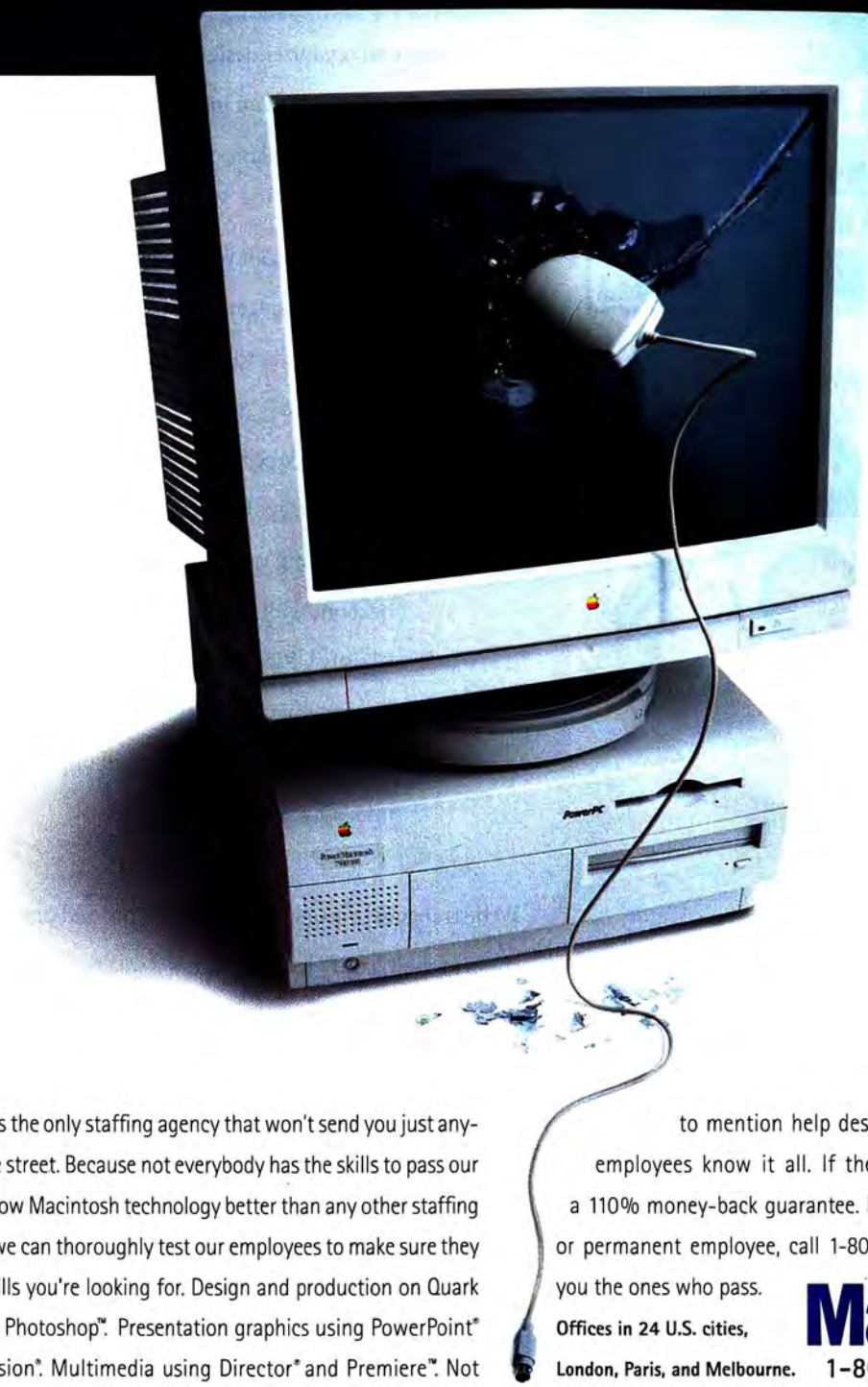
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CIRCLE **39** ON READER SERVICE CARD

Cumulus Network Image Database 2.5

★★★★½

Catalog, search, and retrieve images in a flash.

YOU CAN GRAB the file you need — almost instantly — out of even the most chaotic and largest organizationwide image collections with Canto Software's Cumulus Network Image Database. The latest version of this client/server image database revs its already fast engine, pumps up its AppleScript support, and edges into the lead in the crowded field of image databases and browsers.

The Cumulus Network Image Database starter kit consists of a server application and five copies of a client-software program. With it, you can store thumbnail representations of thousands of images on network servers. Each representation includes information about the image, such as its file type and keywords. When you select an image, Cumulus finds and opens it on your desktop so quickly that you might think the image and the Cumulus database are on your own hard disk rather than in separate remote locations on your network. Several clients can access the same Cumulus database simultaneously without seeing any speed degradation.

Cumulus supports Macintosh Drag and Drop with a vengeance. You can copy an image file to your hard disk by dragging its representation out of the Cumulus database window. If you want to import an image that's cataloged in Cumulus into a QuarkXPress document, you can drop it right into the document, thanks to the included Cumulus XTension. Similar plug-ins that come with Cumulus let you drop pictures into Adobe Photoshop and Illustrator. And you can drag and drop image files, folders, or volumes into a Cumulus database to catalog them.

The variety of file types Cumulus supports highlights its purpose as a cataloging program for publishing — in print and online — and for multimedia-title development. Version 2.5 supports several of the hottest new image formats, including 3DMF (Apple's QuickDraw 3D format) and IVUE (MetaTools' Live Picture format). Cumulus also catalogs TIFF, PICT, EPS, and JPEG files; native-format files, including Adobe Photoshop and QuarkXPress documents; QuickTime movies; snd and AIFF audio files; and Adobe Acrobat 1.0 and 2.0 PDF (Portable Document Format) files.

You can attach any number of keywords you've created to any image or group of images and do a multilevel search by keyword or by almost any other aspect of the file, such as name, type, creator, image size, and resolution. And Cumulus is as fast at searching as it is at retrieving: We were able to search and sort databases that had thousands of entries over our network connection in seconds.

Writing AppleScript scripts to automate Cumulus 2.5 is a delight, because you can script every feature of the program.

The Bottom Line

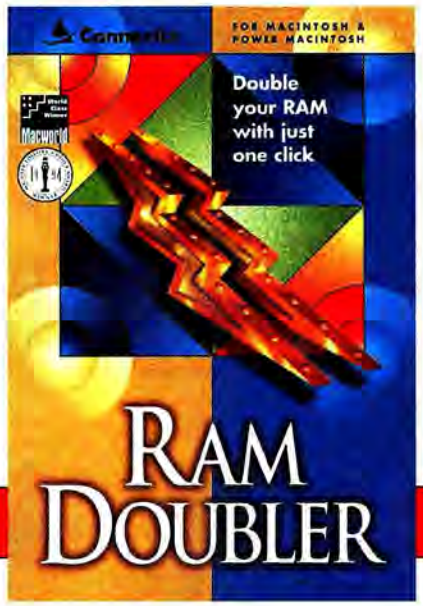
If you need fast access to hundreds or thousands of multimedia files and graphics images, your network needs Cumulus. / Eric Taub

Cumulus Network Image Database 2.5 server and five client-software copies, $1,795; five additional client-software copies, $1,195 (list). **Company:** Canto Software, San Francisco, CA; 415-905-0300. **Reader Service:** Circle #413.

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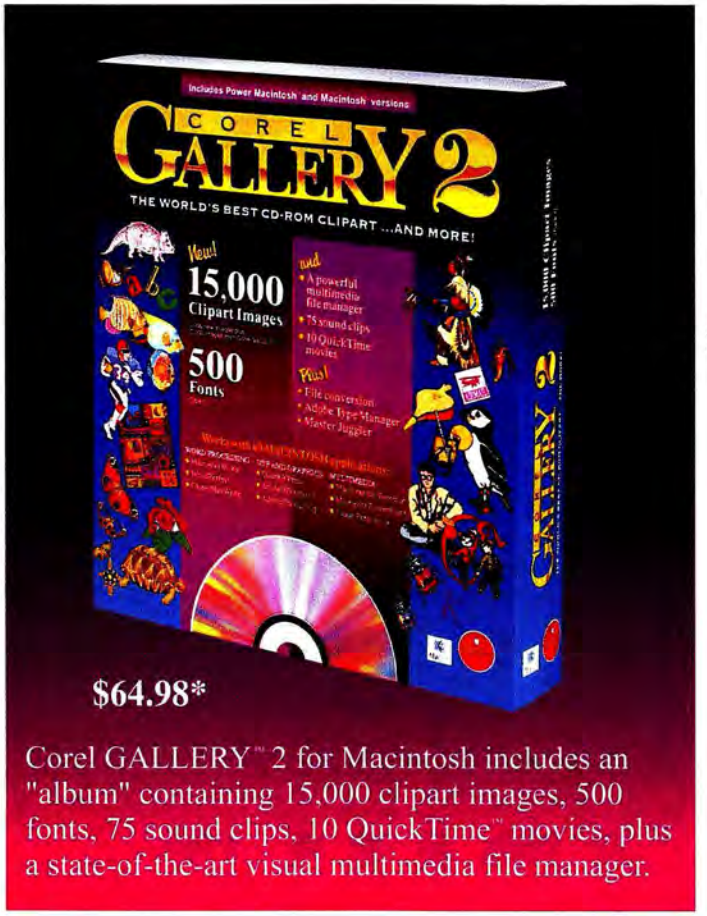
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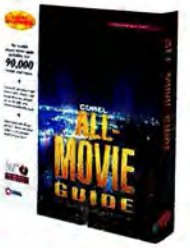
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CIRCLE **77** ON READER SERVICE CARD

ACT! for Macintosh 2.5

3½

Symantec's contact manager is versatile and customizable.

IT'S A FINE LINE that separates a PIM from a full-blown contact manager these days, but Symantec's ACT! for Macintosh is clearly on the contact-manager side of the fence. Like a PIM, ACT! provides a phone book, a calendar, and a to-do list. But it also lets you write letters and send e-mail, plus it works in the background to compile a history of all the events (meetings, letters, phone calls, e-mail, and so on) related to specific clients.

Thankfully, Symantec has redesigned ACT!'s interface and made it more Mac-like than that of the initial release. Windows are now resizable, and you can have more than one calendar view open at a time. Noteworthy new features added to version 2.5 are file synchronization and file attachment. The ability to attach files created in different applications is a helpful feature for building a complete contact-history file. But unlike most basic PIMs, ACT! can't find attached files once you've moved them from their original location on your hard disk.

ACT! is one of the most customizable contact managers. A total of 70 of its 75 fields are customizable, as is its tool bar. You can also customize the program's actions — for example, to schedule a meeting, a phone call, or a to-do item, you can use Preferences to specify which pick lists are to appear.

Once you've scheduled an event, you can view it in a task list or in a daily, weekly, or monthly calendar. One frustrating aspect of ACT!'s calendar views is that they're extremely limited in terms of the information they can display. You can see an icon that tells you what type of event is scheduled — a meeting or a phone call, for example — and the name of the contact you're meeting or calling, but that's it. A related problem with task lists seriously limits their usefulness — if you've entered a company name but no contact name into a record, when you schedule an event related to that company, the Contact field in the task list will be empty.

The query and report tools of ACT! are a bittersweet combination. Searches are powerful and fast, and the program's built-in reports and queries serve well for general use. But if you need to create your own templates, the process can be cumbersome.



ACT! features plenty of customizable fields.

The Bottom Line

ACT! is easy to use and well suited for large workgroups. A Windows version is also available, making it a good choice for cross-platform use. But some key features need polishing before ACT! garners a top-notch rating in the contact-manager class. / Jeff Battersby

ACT! for Macintosh 2.5, $169.95 (list). **Company:** Symantec, Cupertino, CA; 800-441-7234 or 408-253-9600. **Reader Service:** Circle #414.

Break the speed limit.

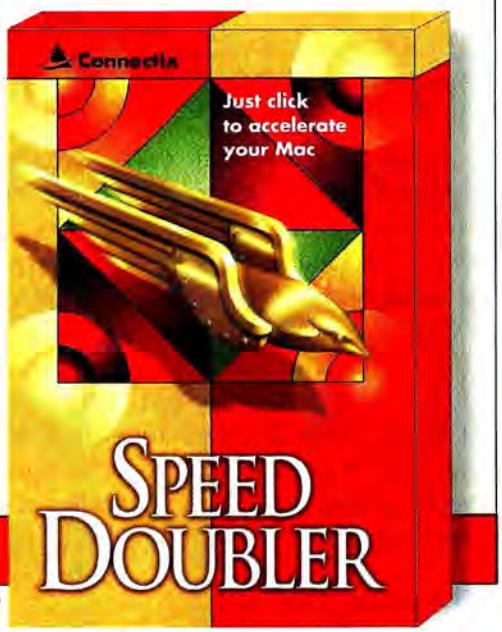
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MACUSER EDITORS' CHOICE AWARD 1995 FINALIST

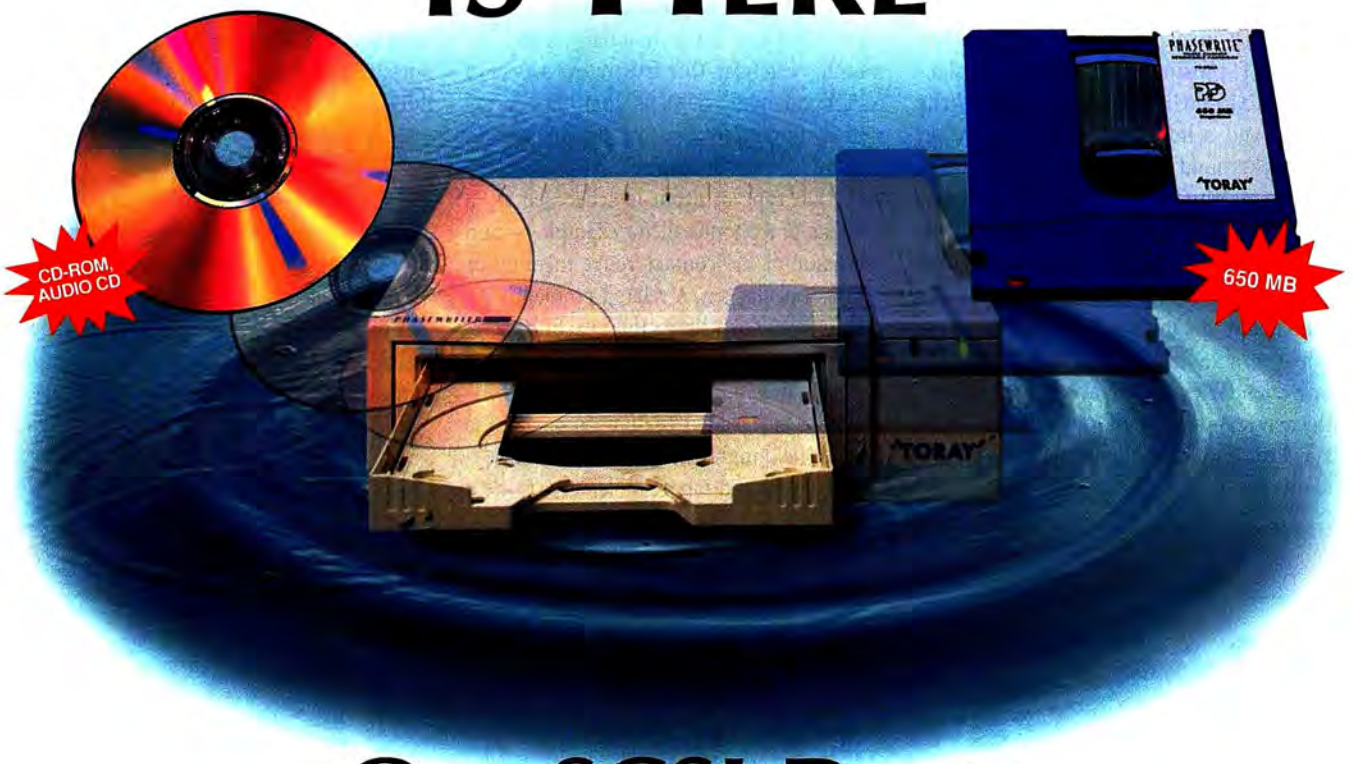
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Dabbler 2

4½

Fractal Design's paint program gets a toon-up.

EXPANDED ART LESSONS on-screen and the ability to create cartoon flip books are just a few of the new features in Fractal Design's Dabbler, an inexpensive yet sophisticated paint program for hobbyists. Dabbler's realistic natural-media tools set it apart from other low-end programs. When you draw with felt-tip pens, the intersecting marks bleed into each other; when you rub water onto a chalk mark, it smears; and when you paint with oil, it glops onto your canvas.

If you don't know how to draw, Dabbler's online art tutors, based on the classic, popular Walter Foster how-to-draw books, will teach you. When you select either Drawing Cartoons or Cartoon Animation from the Tutors menu, a quarter-screen-sized window containing step-by-step lessons appears. New music, narration, and hundreds of animated examples included in an hour of digitized-video instruction guide you through the steps of creating your sketches. You can pause the lessons at any time and test your skills in the drawing area; the lesson window remains on-screen as a guide.

Once you've got the hang of drawing, you can make animated movies, using Dabbler's new Flipbook feature: You draw frames of the action on a series of pages. The ability to see ghosted images of previous and later frames lets you position each drawing correctly. You can flip through your flip book on-screen or print it out. You can also export it as a QuickTime movie.



Dabbler 2's art lessons teach you how to draw and animate cartoons.

A variety of improvements makes Dabbler 2 even simpler to use and navigate than its predecessor. The drawing-tools drawer now houses only drawing tools; special-effects commands as well as commands for choosing your font and its size have been moved to menus. You can use up and down arrows to flip among pages in your sketch pad (a collection of drawings) rather than having to open a tool drawer to do so. And you can apply special effects, such as fade, texturize, and glass distortion, more precisely, with the new slider controls.

Dabbler ships on a CD-ROM packed with 100 stock photographs, 3 image fonts, more than 300 stencils, and more than 100 paper textures. The program requires 8 MB of RAM, and it's really ravenous for hard-disk space. Fractal Design recommends that you have at least 10 MB of free hard-disk space, but you'll want more. Each sketch pad eats up an enormous amount of space, and because of a quirk, sketch pads don't take up less space even if you end up trashing most of their pages.

The Bottom Line

Dabbler is fun and easy to use. Don't let its bargain-basement price fool you: When you explore the program, you'll find it's packed with a wealth of features. / Shelley Cryan

Dabbler 2, $69 (list). **Company:** Fractal Design, Aptos, CA; 800-297-2665 or 408-688-5300. **Reader Service:** Circle #415.

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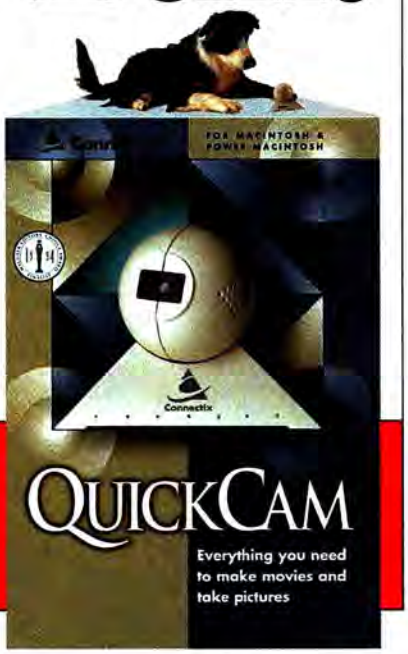
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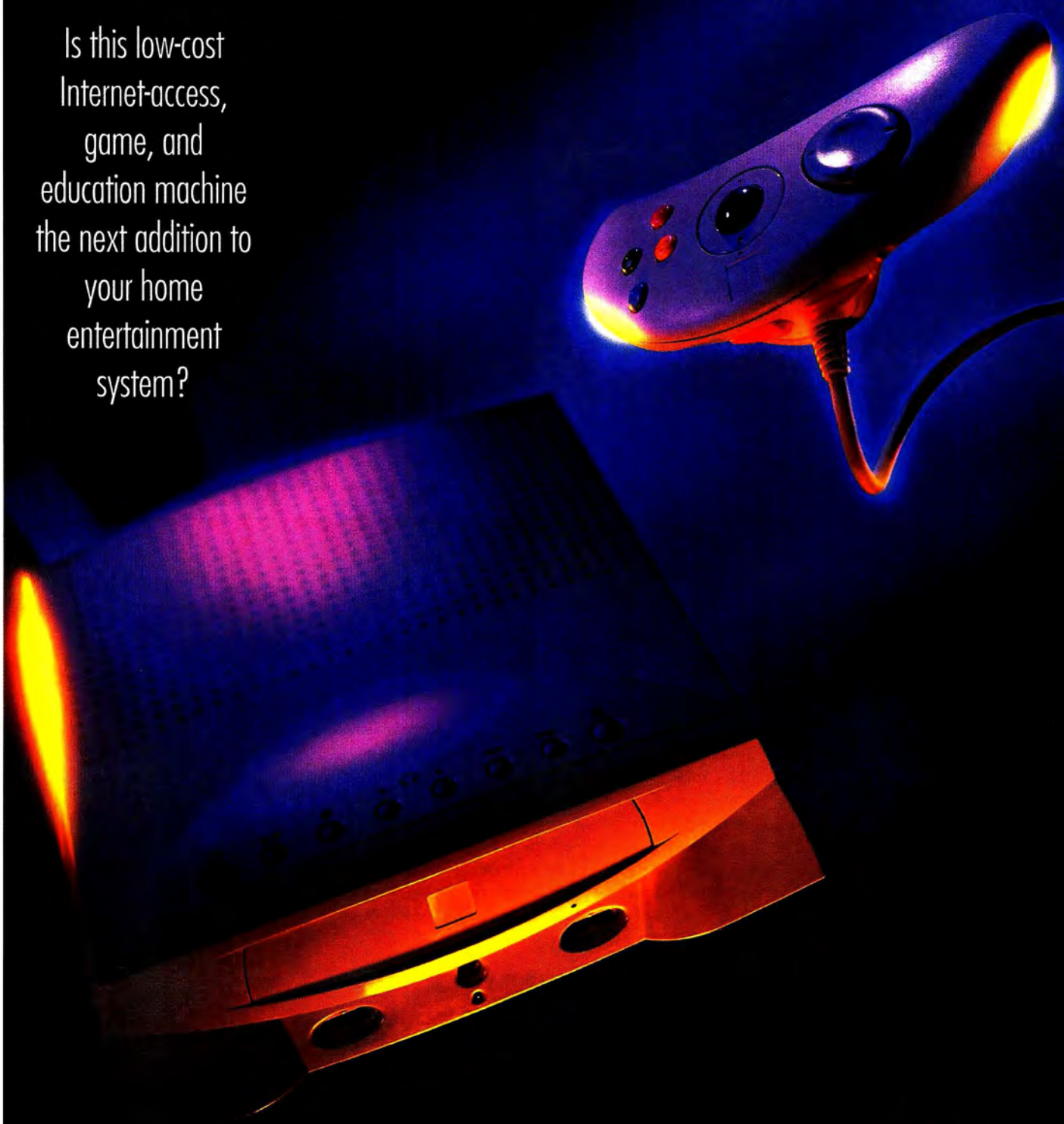


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CIRCLE **64** ON READER SERVICE CARD

PRIME-TIME

Is this low-cost Internet-access, game, and education machine the next addition to your home entertainment system?



BY JON ZILBER

PLAYER

Drop in at any cybercafé in Cupertino, and eavesdrop on the conversation for a minute or two. Above the din of the espresso machines and the clacking keyboards, the locals will be talking about the same two topics that are keeping countless Silicon Valley engineers and executives awake at night. First, there's the so-called WebBoy: the stripped-down $500 computer that will let consumers access the Internet — but not much else. Nobody's making one yet, but every company from IBM to Oracle to Sun swears it'll have prototypes to show in the U.S. any day now.

The second topic is multimedia convergence: the imminent clash of computers, communications, and consumer electronics. That clash has been imminent for years now, but in the current climate of megamedia deals, it's eminently imminent. Those same Silicon Valley executives are now busily power-lunching with their Hollywood counterparts in a mad scramble to define and control the new, hybrid Silliwood.

When it comes to big industry trends such as these, Apple's timing has sometimes been a little bit off. It was ahead of the market with a graphical user interface, late with notebook computers, much too early with handheld devices, and almost fatally tardy in licensing the Mac OS. But Apple is about to launch a new major platform — the Pippin — that is perfectly poised to seize the day in addressing not just one but both of these two biggest buzztopics in the business.

The Pippin is designed to do for home entertainment what the Mac did for computers. A product based on the Pippin platform will connect to your TV and let you play action-packed multiplayer games, view educational CD-ROMs, and access the Internet and other online services with unprecedented ease. A Pippin product will be able to serve as the intelligent hub of your home media center. Apple's partner in creating the first Pippin product — due out in March in Japan and by the end of the year in the U.S. — is Bandai Company, the giant Japanese toy and entertainment firm. And Apple and Bandai are committed to selling the product at an aggressively low price, perhaps as little as $500.

Apple has exactly the right product at the precise right time, the right partner, and the right price goal. And unlike the competing products that are sure to follow it, the Pippin platform is not some half-baked, knee-jerk, me-too reaction to the sudden trendiness of the Internet — the Pippin has been in development for a couple of years as a natural extension of Mac technology into new markets. So why is the U.S. developer community so leery of the Pippin, convinced that it is little more than this year's Newton — a technological tour de force that will flounder in the market and that has little real commitment from Apple? What's wrong with this picture?

PHOTOGRAPHY / JIM KARAGEORGE

What Is the Pippin?

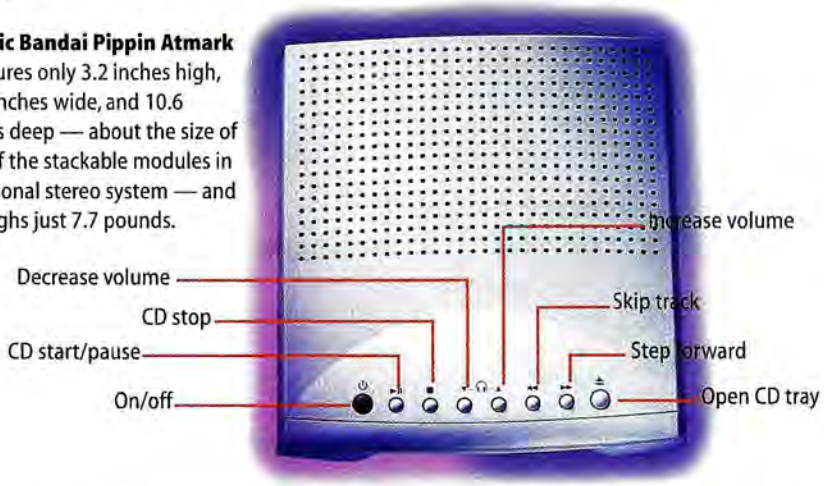
The Pippin is a multimedia platform based on a PowerPC 603 processor and a scaled-down version of Mac system software, ROMs, and standard hardware components. As with the Newton platform, Apple has designed the Pippin as an open platform that other manufacturers can license. But unlike with the Newton, Apple has announced no plans to manufacture any Pippin products under its own name. Bandai will launch its first Pippin device in Japan, where it will be called the Pippin Atmark. (The name refers to the punctuation symbol rescued from obscurity by the Internet.) The small off-white box looks more like a video-game box than a computer, and it comes with a boomerang-shaped game controller. The unit includes a 4x CD-ROM drive that you can use to play CD-ROMs and audio CDs, but it does not have a floppy or hard drive.

Thanks to its two serial ports, the Atmark can connect to standard optional peripherals, including printers, GeoPort or external modems, and digital cameras. On the back, the Atmark also has sound-input and -output ports as well as output ports for connecting to a standard TV, a Super-VHS device, or an optional VGA monitor. Inside, there's a 66-MHz PowerPC 603 processor and 6 MB of RAM. The unit also has a PCI connector on the bottom, so you can stack expansion modules (such as an optional floppy-drive docking station) underneath it. And although it's based on standard Macintosh components, the Pippin has some nice additional touches, such as ruggedized ADB ports designed for hazardous duty in typical peanut-butter-enriched family environments.

How will it work? Apple and Bandai expect most users to connect a Pippin device to their home TV — the way they'd connect a Nintendo or Sega game machine — rather than to a separate monitor. Just as the operating system necessary to run a game on a dedicated game console comes on the game cartridge itself, so does each CD-ROM containing a Pippin application also contain the system software necessary to make the Pippin run. The Pippin system software and authentication code are added to each CD-ROM by a disc-stamping house; this process not only ensures trouble-free operation for consumers but also lets Apple follow the business model of the game industry, whereby it can collect a royalty for each disc sold. (To help motivate developers in Japan to create CD-ROM titles for the Pippin, however, Apple will waive any such royalties in 1996.)

What do you get when you put this assortment of hardware and software and this particular business model into a device expected to sell in the neighborhood of $500? Depending on how you look at it, it's either an impressive collection of components for a combo game machine and low-cost Infobahn on-ramp — or an embarrassingly stark home computer. Or, perhaps, it's something completely different — a new category of home information appliance.

The Pippin should benefit Mac developers in search of growth markets for their software. At the $500 price point, the platform should appeal to huge new segments of the consumer market as well as to the education market. The Atmark will be sold only in Japan, but Bandai has committed to bringing a like product to the U.S. by year's end and has set up a subsidiary, Bandai Digital Entertainment,



A basic Bandai Pippin Atmark measures only 3.2 inches high, 10.4 inches wide, and 10.6 inches deep — about the size of one of the stackable modules in a personal stereo system — and it weighs just 7.7 pounds.

in La Mirada, California, to test-market the as-yet-unnamed device.

Although a Pippin device doesn't deliver the full capabilities of a Mac — it has no hard drive, no Finder, limited networking capability, and so forth — that's a plus for many of its target customers. The Pippin's limitations mean that you're sheltered from the operating system: Pop in a CD-ROM, and the game or application appears onscreen. No clicks, no control panels — no muss, no fuss. What you get — in theory, at least — is the ultimate add-on for your home entertainment center or the perfect education machine for both home and school.

The Game's Afoot

But although the Pippin may be the first in a new category of hybrid consumer devices, most third-party developers think of it as yet another game machine vying for their already stretched resources. And the name of the game in the game market is fast photo-realistic graphics. Unlike the competition — most notably Sony's PlayStation — the Pippin platform lacks the specialized hardware needed to crank out texture-mapped 3-D graphics in real time. This means that for fast photo-realistic rendering, most of the memory and CPU cycles of the system are eaten up just by its doing the calculations the PlayStation does in its dedicated graphics-subsystem hardware. On the other hand, thanks to the use of standard Macintosh interfaces and hardware, the Pippin offers far better expandability than the game platforms. What the Pippin lacks in raw shoot-'em-up horsepower, it makes up for in versatility. And unlike game machines, the Pippin has an operating system with depth, breadth, and stability; after all, its operating system is a subset of the Mac OS.

Theoretically, the Pippin could wind up with a far more diverse array of software choices than any of the dedicated gaming platforms. If Mac developers can live within the memory constraints of the Pippin platform and adhere to some fairly simple restrictions (such as avoiding hard-disk caching, adjusting color palettes for output to a TV instead of a monitor, and modifying user interfaces to operate without the usual Mac menu bar), they can make their Mac software Pippin-ready without extensive reprogramming. Conversely, software created for the Pippin platform can run on a Mac. So developers of Pippin software will have the incentive of an instant installed base of potential customers far larger than that for any other high-end game platform, even before the first Pippin hardware ships.

But just as the Pippin prepares to take on the game-console market, the major console-game makers are hedging their bets with computer-based gaming. Atari and Sega, for example, have announced new thrusts into the PC game market. Philips has repositioned its home multimedia CD-i platform for professional and vertical markets, and its software development will expand to encompass other platforms, particularly software on CD-ROM for PCs.

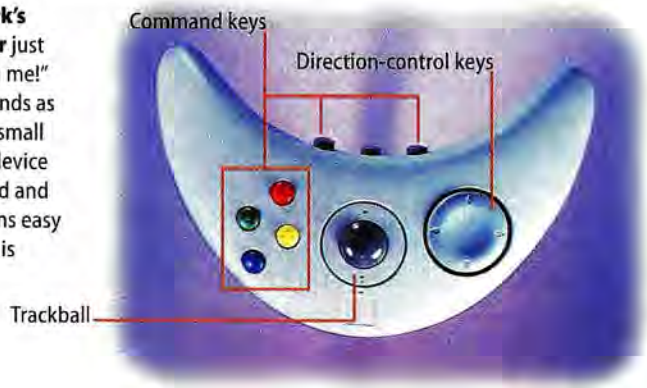
The game companies want to be in the computer business. The computer companies want to be in the game business. But while each industry was busy coveting the other's profits, along came the Internet.

Working with a Net

The Pippin's small size, form factor, and simple operation make it more at home in the home than a full-featured computer. And with Net surfing replacing TV time in millions of households, the Pippin could become more than a game or edutainment multimedia machine; it could be the key that will bring the Internet into the living rooms and kitchens of America. Or at least of Japan.

The Pippin's prospects in Japan as a low-cost double-duty home entertainment/communications appliance are promising. In Japan, the hype over the Internet has reached the same manic level as it has in the U.S. But access to the Internet in Japan is not nearly as widespread, and access providers are primarily text-based services. In addition, a much smaller percentage of households has computers in Japan (only about 17 percent, versus about 35 percent in the U.S.). And in space-crunched houses in Japan, the Pippin's small footprint gives it an edge. Over 120 software titles will be announced when the Atmark ships in Japan, including about 30 from Bandai. Bandai has also prepared at least one online service. Expect the titles to include everything from games such as Racing Days to Internet-access software to music titles such as Peter and the Wolf to e-mail packages.

In the U.S., on the other hand, the Pippin's future is fuzzier — and it depends on several factors Bandai has yet to resolve. To start with, there's the issue of price. Despite the firm's declared intention to sell a Pippin device in the U.S. for around $500, a bit of detective work suggests that the price may extend as high as $700. (At press time, Bandai announced that a bundle of the Pippin Atmark, a modem, and several software titles will be sold in Japan for slightly under $650 U.S.) Bandai, however, clearly appreciates that a $500 price has



The Pippin Atmark's chipper controller just screams, "Play with me!" Folks with large hands as well as those with small ones will find the device comfortable to hold and the function buttons easy to use. A keyboard is optional.

become a holy quest among its likely U.S. competitors.

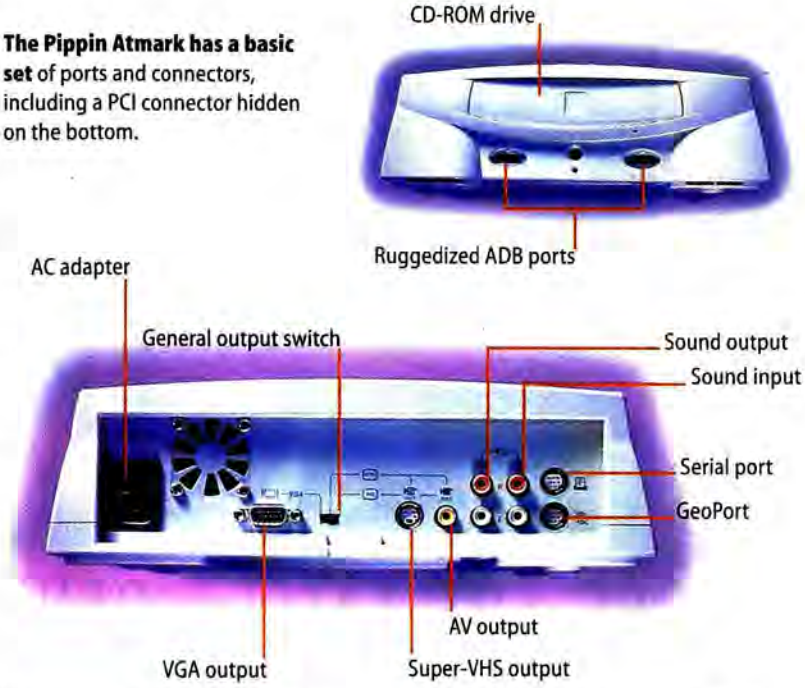
Second, the success of the Pippin in the U.S. will depend on what software is available at launch time. Although Bandai and Apple have been publicly showing the Pippin to potential developers for nearly a year, most remain skeptical. In fact, when we talked to key developers of game, education, and other CD-ROM software about the Pippin, the most common responses were, "What's Pippin?" or "We don't have the resources to support an unproven platform." MacPlay's Bill Dugan (whose business card reads "Macintosh high priest") put it succinctly: "It's a 4-MB Macintosh!" Not only do the operating system and video capability use up 2 MB of the Pippin's available 6 MB but also since the platform lacks the kind of built-in rendering hardware found in systems such as Sony's PlayStation, developers have little RAM left for game play — and leading-edge games today often require 10 MB or more. (The Pippin will accept up to 7 MB of additional memory, but that's a relatively expensive option.)

More fundamentally, although aiming to be all things to all consumers, the Pippin could end up as an unacceptable compromise designed by committee. As a game machine, it can't compete with the PlayStation's stunning graphics. As a home-learning multimedia player, the Pippin is too much of an unknown quantity for most developers to experiment with. As a computer, the Pippin suffers from the lack of a hard drive. And as an Internet-access device, it's limited by how well typical Web pages can be rendered on standard TVs. Although the Pippin has special hardware for improving the appearance of fonts, text-heavy pages are still more difficult to read and navigate on a TV than on a computer monitor.

Still, if Apple and licensees such as Bandai can keep prices down, they may be able to capture customers who have thus far resisted buying a home computer. Like the game-console makers, Apple will receive a royalty on all CD-ROMs sold. And like cellular-phone vendors, Apple or Bandai also stand to make money from online services. So just as cellular-phone companies practically give away the hardware to hook you on the service, the upfront price for the Pippin could end up at a point that would be hard to resist.

Wanted: DVD ASAP

The Pippin will have a shot at success if it represents something new: a household info application for the living room and kitchen, anywhere there's a TV or a phone (and where you don't want a computer, for space, accessibility, or aesthetic reasons). To sell this vision, the Pippin needs to provide a function that has clear value. Internet access may serve this purpose in Japan (where the Bandai name is also better known), but it's not enough in the U.S., where you can hardly open a box of cereal without pouring out a sign-up disk for free Net access. The technology that just may make the Pippin a success is DVD (digital-video disc), the emerging consumer standard that promises to do to VHS what the CD did to vinyl. (One CD-sized digital-video disc can hold a full-length, full-screen movie with better resolution than today's VHS tapes'; DVD players are expected to ship by Christmas.) A Pippin device with a built-in DVD player (or even an expansion unit connected via PCI) would give consumers an extra incentive to take a chance on a new multimedia platform.



The Pippin Atmark has a basic set of ports and connectors, including a PCI connector hidden on the bottom.

Not only does the Pippin need DVD but also DVD needs a platform such as the Pippin. Until DVD players can also record video, few consumers will completely abandon their investment in VHS tapes and VCRs. With a DVD player aboard the Pippin, consumers would have a far more compelling reason to gamble on it. Throw in accelerated-QuickDraw 3D hardware for game playing to rival that of Sony's PlayStation, and the Pippin would be hard to resist.

What else is on our wish list for version 2.0 of the Pippin? If the Pippin is going to be in the family room, the game controller needs to be wireless. Why not bundle software that lets the Pippin program your VCR, with unprecedented ease of use? How about using the Pippin to program your home or cellular telephone? If the Pippin is to become the family Internet-access device, it should be bundled with software that lets you control Web access for kids. And while we're wishing, let's talk color schemes — every other device in your home media center is black, so why is Bandai's Atmark off-white?

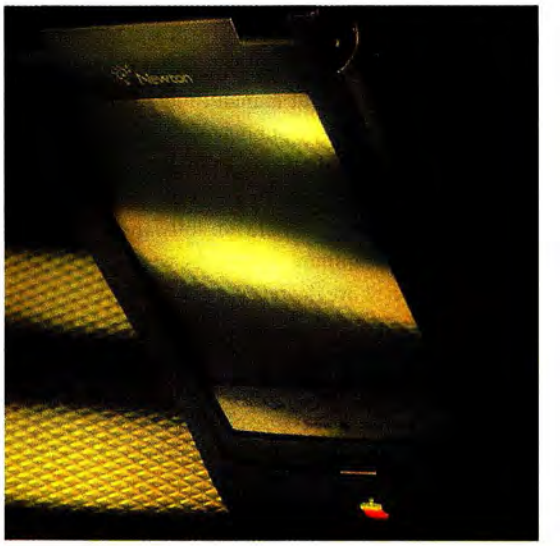
A Crop of Questions

It's still too early to tell whether the first generation of Pippin hardware will succeed well enough for there to be a second generation. Pippin-based products will have to compete with game machines as well as with other sure-to-come low-cost Internet-access devices. And, if prices for Pippin products edge too close to $1,000, once options such as modems, keyboards, and floppy drives are thrown in, then low-cost personal computers will also become competitors.

The Pippin platform will get its first test in Japan when Bandai releases the Atmark in March. Will the market view it as an edutainment-software player or as a Navigator-compatible Internet portal for those who lack the space, budget, or inclination for a computer? Or will the Pippin carve out a new market for hybrid home devices? Will it incorporate new technology such as DVD fast enough to stay in the game? The potential impact of the Pippin platform is phenomenal. But till the Atmark ships, the answers will stay as elusive as what another punctuation symbol — the question mark — evokes.

Jon Zilber is a former editor in chief of *MacUser* and *PC/Computing*.





DOES THE LATEST GENERATION OF PDAS





MAKE GOOD ON THE INITIAL PROMISES?





TOY STORY

It had all the makings of a sure thing: a team of hotshot engineers behind it, the embarrassingly gushy support of a high-profile CEO, and more gee-whiz gewgaws and whiz-bang whatnots than even gadget maniacs could use. But the hulla-baloo surrounding the launch of the Newton — the most popular PDA, or personal digital assistant — backfired before the digital ink had a chance to dry. The Newton quickly became the '90s incarnation of the Edsel — or the *Edsmk*, as the original Newton MessagePad's handwriting-recognition engine might have put it.

BY JON ZILBER

PHOTOGRAPHY / PAVLINA ECCLESS

The premise behind the Newton was simple: It's a mobile society, and everyone wants constant access to the information that controls their lives, such as phone numbers, schedules, flight numbers, and forms. And everyone also wants to send and receive short messages and jot down notes while on the road. But notebook computers can be too bulky, heavy, and expensive. The MessagePad was supposed to be the perfect digital organizer, complete with an intuitive handwriting-driven interface and an open architecture that promised scores of third-party applications.

But rather than ignite a revolution, the Newton incited a firestorm of criticism. It overpromised and underdelivered. When former Apple CEO John Sculley boasted that the Newton would open the floodgates on a trillion-dollar market for handheld devices, it was more than a simple case of math illiteracy. (That kind of sales volume would be achievable only if every soul on the planet ponied up around $200 a head — roughly the annual per capita income for, say, Madagascar.)

Market projections aside, the first Newton — the MessagePad — was plagued by several fatal flaws. The most notorious among them was its inability to decode handwriting accurately, a fact that was ridiculed in an infamous series of "Doonesbury" comic strips. To add insult to injury, the MessagePad battery life was too short, its memory was inadequate, and its communications capabilities were limited and required kludgy add-on hardware. Most critically, only a handful of third-party applications was available.

Armed with a healthy dose of new technology — and a repositioned strategy aimed largely at more-limited, vertical-market solutions — Apple's latest Newton, the MessagePad 120, running the new version 2.0 operating system, is making skeptics think again. And with a host of competing devices emerging, there's a new round of PDA wars stirring. This time, there may actually be some winners.

What's New in the Newest Newton

If the original Newton was a dazzling (if misguided) display of technical wizardry, the enhancements in the newest version of the operating system and hardware are a nod to practicality. The latest device builds on the same mix of personal-information-management tools: a contact database, a scheduler, and communications tools. Apple has focused its attention on technologically modest but pragmatic improvements designed to simplify data input and communications for the most commonly performed tasks.

For example, pop-up-menu choices and data-entry lists are now readily available for the most commonly needed fields. The Names and Dates applications have been more tightly integrated with each other, and a new Calls application tracks outgoing phone calls automatically. A new external Newton Keyboard is available to speed up data entry. Apple has also improved the handwriting-recognition engine, which works with printed as well as cursive characters.

Apple also bundles two simple but extremely helpful pieces of software with the MessagePad 120: Newton Backup Utility and Newton Press. Newton Backup Utility makes it easy to transfer data from your MessagePad to your Mac (or Windows-based PC) and to load applications onto your MessagePad from your desktop system. So you now have two ways to get application software into the Newton: the expensive way (by inserting a PC Card containing the application into the Newton) and the inexpensive way (by buying the application on a floppy disk, loading the floppy disk into your desktop Mac, and then using Newton Backup Utility to transfer the application to the Newton).

Newton Press is an application that runs on your Mac and allows you to translate a wide variety of basic documents into Newton-readable packages you can easily download to your MessagePad. Although creating full-bodied interactive Newton applications still requires development tools and programming ability, Newton Press goes a long way toward letting nonprogrammers turn a Newton into a portable storehouse for documents and databases that don't fit neatly into existing Newton application formats.

Apple has also beefed up the MessagePad's communications tools, which include built-in faxing software and e-mail client software for LAN-based e-mail — such as QuickMail, cc:Mail, and Microsoft Mail — as well as public e-mail — such as America Online and CompuServe. In addition, Apple plans to offer TCP/IP software to permit Internet access by mid-1996 and a firm called AllPen Software has announced plans for a Newton-based Web browser.

There hasn't been a tidal wave of third-party Newton software applications, but there has been a steady stream. Apple bundles one third-party application sure to appeal to many users: Pocket Quicken, a well-implemented version of the popular desktop personal financial-management tool. (The software for connecting to desktop editions of Quicken, however, costs $29.95 extra.)

Most Newton applications are targeted at vertical markets such as health care and financial management and address such needs as integration with enterprise networks and databases. A variety of utilities is also available, such as True North's Gulliver 2.0, an itinerary manager and database of travel information, and Now Software's

The Ace of PDAs / a tiny assistant

THE TROUBLE WITH MANY PDAs is that they're not worth the trouble. Although smaller than a notebook or even a paper-based organizer, they're still another thing to carry. And keeping the data on your PDA in sync with the information on your computer is next to impossible.



Enter Palm Computing's Pilot. This diminutive PDA — think of it as a credit card on steroids — slips easily into your shirt pocket, with plenty of room left for a pocket protector. Using Palm's Graffiti handwriting-recognition engine, it handles basic PIM functions simply and efficiently. But its most unusual feature is the angled stand that gives the Pilot a base station by your computer. On most PDAs, synchronizing data with your desktop system is either too simplistic or too complex. With the Pilot, you push one HotSync button and the Pilot synchronizes all its data with the data stored in a parallel application on your computer.

The Pilot's operating system and applications are among the most intuitive of any PDA's. And the Pilot solves two of the biggest problems (bulkiness and an inability to synchronize data) that turn other PDAs into shelfware. The Pilot is expected to be available for Windows-based systems by the time you read this, with the Mac version shipping shortly thereafter. Starting at a list price of $299, this Pilot is sure to take off.

Now Synchronize, which integrates Newton data into Now's desktop scheduler and contact manager. AvailWorks, from Avail Technology, offers an integrated package of text-processing, spreadsheet, drawing, and graph-generation tools. And Claris plans to bring its popular FileMaker to the Newton platform early this year.

What's Missing?

The Newton 2.0 operating system is easily the most robust and expandable PDA platform available. And the MessagePad hardware is the sleekest-looking and most comfortable to use. But there's a growing array of competing handheld devices that have a few tricks up their sleeves that the Newton could learn from. All of these pen-input devices include basic functionality — contact and scheduling tools and at least some connectivity and communications options — similar to that of the Newton MessagePad. And each offers at least one bell or whistle that makes it worth considering as an alternative to the MessagePad.

Bulletproof Handwriting Input. Despite impressive advances in handwriting-recognition algorithms, PDAs are not horseshoes and close doesn't cut it. You're much better off entering data on your desktop computer and downloading it to your PDA. But since most PDA uses involve entering at least some data, you still need a better way to get text in than using the pen or downloading from your desktop system.

Graffiti, from Palm Computing, is an enhanced handwriting-recognition package that's built into several handheld devices. (It's an option for the Newton.) Unlike the Newton, with its flexible approach to recognizing handwriting — in which you can print or write cursively — Graffiti requires that you learn how to print characters in its fixed style. It takes only about an hour of use to learn the basic 36-character alphanumeric character set, however, and once you've learned how to write Graffiti-style, recognition is remarkably good. Each letter in the Graffiti alphabet is a streamlined version of the standard block character — the letter *A*, for example, looks like a pointy croquet hoop, and the hoop must be started at the lower left. By restricting the way you write, Graffiti not only achieves near-perfect recognition but also creates, as with stenography, an alphabet consisting of characters that can be written much more quickly than conventional ones.

In addition to the basic 26 letters and 10 digits, Graffiti includes multistep pen strokes that can be used for punctuation, diacritical marks, capitalization, and so on — although for less frequently used characters and commands, you're probably better off using an on-screen pop-up keyboard to manually select characters.

Integrated Keyboard. As good as Graffiti is, many users will find that using a physical keyboard is easier and faster for entering data. Although an optional portable keyboard is available for the MessagePad 120, by the time you've packed up the keyboard along with extra batteries and an AC adapter, you may as well be schlepping around a notebook computer. If you need keyboard input in the field, you'll want a device that comes with a built-in QWERTY keyboard.

Hewlett-Packard's OmniGo 100 straddles a hybrid ground midway between pen-oriented PDAs and keyboard-oriented pocket computers. No thicker than a MessagePad, the OmniGo sports a built-in keypad: Just open the OmniGo's clamshell case and start hunting and pecking. But its unique form factor also has a slick trick up its svelte sleeve: If you flip the keypad all the way around behind the display and click on an icon to rotate the display from horizontal to vertical mode, you can enter and access data on the pen-based display Newton-style.

Creature Comforts. Sharp's Zaurus offers a slightly larger keypad that adult fingers will find more accommodating. And although the MessagePad 120 may have the sleekest curves of any PDA, the Zaurus case has a rubbery, nubbly texture that gives it the best tactile feel and makes it easy to grip. If you're thinking of replacing your fine Corinthian-leather paper organizer with an electronic device, you'll feel more at home with the luxurious touch of the Zaurus than with other PDAs. (Its features and operating system, although less robust than those of the MessagePad and the OmniGo, include all the basic capabilities most users will need.)

Smaller Is Beautiful. Although the MessagePad 120 is a marvel of miniaturization technology, it's still too big to stuff into a shirt pocket. For the ultimate in unobtrusive portability, Casio's NX-6000 — smaller than a deck of cards — is hard to beat. With its flip-top cover, it's hard to resist the urge to flick your wrist and mutter, "Beam me up, Scotty; no intelligent life forms here." Unfortunately, the NX-6000 boasts little intelligence of its own. Although it may be the perfect stocking stuffer for any aging trekkie facing a midlife crisis, its limited capabilities make it suitable for only the simplest of data-retrieval purposes. (For a preview of a far more promising pocket-sized device, see the "Ace of PDAs" sidebar.)

One notable trait the NX-6000 shares with its bigger brother, the Executive B.O.S.S., however, is a four-color display. In theory, color makes it potentially easier to navigate the NX-6000's functions — for example, high-priority items in a to-do list could be shown in red. In practice, even color can't help the cryptic interface of both the NX-6000 and the B.O.S.S., although the color does liven up some of the PDAs' gratuitous on-screen animations.

In the extrasmall category, the most useful devices are those that limit themselves to one purpose. For example, if all you really want from your PDA is a mobile rendition of Quicken, check out Intuit's Pocket Quicken on Bookman. At $100, it will certainly fit your budget more easily than a multipurpose PDA. However, its three-line display and cramped keyboard require such feats of nimble navigation and manual dexterity that you might be inclined to keep the unit and your receipts tucked in your shirt pocket until you get back to your desktop machine, thereby defeating its sole purpose.

The Voice of Reason. Voice-recognition capabilities would eliminate the need for a keyboard and pen, but nobody has yet managed to miniaturize the hardware for adequate voice-recognition capabilities on a PDA. But the hardware for digitally recording voice input can be miniaturized and manufactured quite inexpensively. A variety of memo message recorders is available for anywhere from a few bucks to a couple hundred dollars. Think brilliant thoughts, record them, and play them back when you need a reminder.

The more sophisticated devices let you enter and retrieve multiple messages selectively, and such devices even include visual menus with icons to represent the lengths of various messages (as a way to help you remember which message is which). Still, these devices are little more than gadgets — they look good in the Sharper Image catalog, but unless your needs are extremely modest, you're not likely to get much use out of them. On the other hand, the ability to record quick voice memos would be a nice additional feature on a more full-featured PDA.

OS Wars

The low-cost alternatives to the Newton are little more than electronic organizers on steroids. Although they may offer useful functionality, they don't offer a platform to grow as your needs expand. In the universe of handheld devices, there are only two significant alternatives to the Newton operating system: Geos and Magic Cap.

Geos, created by Geoworks, is the operating system used in the HP OmniGo and the Casio Z-7000. And at least one major manufacturer of cellular phones, Nokia, plans to use Geos as the basis for a line of "smart phones." Devices based on the forthcoming version of Geos, version 3, could be the basis of Internet access terminals that are priced at less than $500, thanks to Geos' support for Internet protocols such as TCP/IP.

General Magic's Magic Cap is an impressive piece of technology that has yet to fulfill its potential. Sony's Magic Link is currently the only major PDA to use Magic Cap, which offers an icon-based user interface that's arguably even easier than the Newton's. And its multiplatform architecture and Telescript language let developers create applications that can be initiated on your device and then passed to some remote server running a different operating system, for additional processing. For example, a request for an airplane reservation might go from your Magic Link to a travel agent to an airline's server to a parcel-delivery service that will arrange for ticket delivery, with each link in the chain knowing how to handle just its portion of the transaction.

Sound familiar? That's also the story behind Java, the suddenly-all-the-rage Internet scripting language. With a Java-enabled Web browser, users can run small "applets" that communicate with applications running on servers that are invisible to the user. Although the technologies of Telescript and Java are vastly different — for example, Java is designed for single users and Telescript is for high-capacity multiuser transactions — application developers may be reluctant to support both paradigms. In a move that could broaden interest in Telescript, General Magic plans to release Magic Cap as a desktop utility for Windows by mid-1996.

PDA Personality Profile

Using any of these devices is an exercise in compromise. Do any of them provide a compelling reason to organize your work life on a $500 piece of gadgetry instead of on a $.79 legal pad and an old-fashioned (but reliable) Ticonderoga No. 2? Can they actually help you get work done faster and more efficiently? The answer is a qualified yes. Here are a few questions to help you decide if you're a good candidate for any of these devices:

THE PDA PERSONALITY PROFILE / each PDA has a personality, and each personality has its PDA

Device	Coolest Feature	Ideal Users	Patron Saint	Fashion Statement
Newton MessagePad 120	Cursive- and printed-handwriting recognition	Those who need solutions to out-of-the-ordinary problems	Former Apple CEO John Sculley	"Doonesbury," Schmoonesbury . . . I always liked the one with that Opus penguin better anyway
HP OmniGo 100	Pivoting orientation	Those who seek an alternative to a notebook	Bo Jackson	Who says you can play only one way?
Palm Computing Pilot	Fits in shirt pocket, tethered desktop stand	Day-Timer addicts	Self-help guru Steven Covey	Could become the eighth habit of highly effective people.
Casio NX-6000	Four-color display unit that fits in your palm	Yuppies with far too much disposable income	Elaine from *Seinfeld*	Love the red, but can't they do something about that *blue*?
Casio Executive B.O.S.S.	Four-color display with QWERTY keyboard	Yuppies with far too much disposable income who can type	George from *Seinfeld*	Why, yes, my tie *is* from The Sharper Image!
Casio Z-7000	Built-in reference library	Trivia junkies	Kramer from *Seinfeld*	Why, yes, my socks *are* from The Sharper Image!
Sony Magic Link	Highly graphical interface	Aesthetically motivated gadget hounds	Martha Stewart	Bountiful icons add such a festive touch to any PDA.
Sharp Zaurus	Biggest PDA keypad	Aesthetically agnostic gadget hounds	Buzz Lightyear	I am *not* a toy!
The Wildfire Electronic Assistant	Voice-based assistant	Cell-phone junkies	Michael Ovitz	Have your PDA call my PDA; they'll do lunch sometime.
Digital voice recorders	Click-and-talk interface	Mobile professionals who like the sound of their own voice	Newt Gingrich	Now I'll never forget what I wanted to say to Alvin Toffler.
Intuit Pocket Quicken on Bookman	Dedicated personal-finance manager	People who know whether *anal-retentive* has a hyphen	The Courteney Cox character from *Friends*	Hang on . . . scroll to column 2 . . . carry the 5 . . . and subtotal OK, yes, I *will* have fries with that.
Paper-based organizer	Truly intuitive interface	Neo-Luddites	George Bush	Wow! Let me jot a note about those grocery-store scanners down in my Day-Timer.
GameBoy	Only platform with multiple Mario Bros. titles	Those who find that PIM features only get in the way of their games	Macaulay Culkin	&!$#%! I'll get you next time, sucker!

Call of the Wildfire / your phone assistant

IMAGINE A PDA that could respond to your voice, that could retrieve messages and phone numbers and schedule information at your command. Imagine that it could politely and personally respond to phone calls when you're not around or automatically return calls. Imagine that it did all this without forcing you to put up with a cramped display, garbled handwriting interpretation, or tiny input keys.

Not only can The Wildfire Electronic Assistant do all this but it also offers the ultimate in PDA miniaturization: zero footprint, no pounds, no ounces, and infinite battery life. Wildfire is a telephone-based service that uses voice recognition to help you manage all your communications tasks. Anywhere there's a phone, you can call into Wildfire.

As a Wildfire client, you dial into the system, which greets you in the soothing voice of a dedicated assistant and engages you in a surprisingly natural conversation. You set up account information — lists of names and phone numbers — simply by reciting the information to Wildfire. Wildfire can even be programmed to have a sense of humor: In one demonstration, when the caller said to Wildfire, "I'm depressed," Wildfire instantly replied, "You're depressed? I live in a box!"

We found Wildfire's voice recognition to be surprisingly good right out of the box — even in aurally challenging environments such as airports, homes with children, and wireless communications networks. And the recognition gets even better after you've trained Wildfire to know your intonation. (For your own demonstration or for more information, call 800-WILDFIRE.)

Large corporations can buy a Wildfire server to run on-site. Smaller firms or individual users can sign up for Wildfire service through a reseller. Typical costs for a single user are in the same ballpark as for cellular-phone use. (Telephone charges are, of course, additional.)

If you now use a paper-based organizer, do you . . .

. . . refer to your organizer at least five times a day?
. . . completely update and overhaul your organizer more than once a month?
. . . reconcile your paper-based organizer with information stored on a desktop computer?

If you now carry a notebook computer with you at all times, do you . . .

. . . spend more time maintaining and troubleshooting your notebook than using it?
. . . leave important materials behind because your notebook takes up too much room in your briefcase?

If you don't currently use either a notebook computer or a paper-based organizer, do you . . .

. . . buy Post-its by the case?
. . . have shirt pockets full of unread notes to yourself?

If your profession requires filling out forms, retrieving data, or sending information from the field, could you (and would you) . . .

. . . develop applications to simplify your work flow?

OS Software	Handwriting Recognition	Price	Where to Find It
Newton 2.0	Graffiti (optional)	$699 (est.) street)	Apple Computer Cupertino, CA 408-996-1010
Geos	Graffiti	$349 (est. street)	Hewlett-Packard Palo Alto, CA 541-715-2004
proprietary	Graffiti	$299 (list)	Palm Computing Los Altos, CA 415-949-9560
proprietary	none	$300 (list)	Casio Dover, NJ 201-361-5400
proprietary	none	$250 (list)	Casio Dover, NJ 201-361-5400
Geos	proprietary	$600 (list)	Casio Dover, NJ 201-361-5400
Magic Cap	Graffiti (optional)	$899 (list)	Sony San Jose, CA 800-571-7669
proprietary	NA	$499 (est. street)	Sharp Mahwah, NJ 201-529-8200
telephone network	NA	$39 per month	Wildfire Communications Lexington, MA 617-674-1500
speech	NA	varies	various Sharper Image-type stores
Intuit	none	$100 (direct)	Intuit Menlo Park, CA 415-944-0573
Ticonderoga No. 2	varies by user	$0.79 and up	various stationery stores
Nintendo	none	close-out prices	Toys "R" Us

For those who answered yes to any of these questions, there's a good chance that if you purchased a PDA, it would do more than gather dust on the shelf. With the range of options available, chances are there's a device to fit your needs. Overall, the MessagePad 120 is the most robust and expandable platform for custom application development. The OmniGo offers a worthy, versatile, and less expensive platform for off-the-shelf products but doesn't provide the same level of integration with a Mac as does the Newton. For basic PIM functions, Palm Computing's Pilot (which should be available around the time you read this) offers an elegant and simple alternative. Other alternatives are noted in "The PDA Personality Profile."

What's in store for PDAs? Improved communications is the key area to watch. Motorola markets wireless versions of both the MessagePad and the Magic Link (called the Marco and the Envoy, respectively) that use RadioMail for transmitting messages and data. Apple and Geoworks plan to incorporate Internet support into their operating systems. And you can expect future generations of cellular phones to include PDA functionality, and vice versa.

A hybrid device such as that could evolve into what's become the new Holy Grail of both computing and communications — the under-$500 "WebBoy" Internet-access device. It could also become the Yugo of the Information Superhighway. In the fast-changing world of PDAs, only one thing's for sure: With more technology, more gadgets, and more inevitable misfires in the PDA wars, the only clear winners will be "Doonesbury" and "Dilbert," which will certainly have no shortage of material for years to come.

Jon Zilber is a former editor in chief of *MacUser* and *PC/Computing*.

Getting COLOR in Sync

If inconsistent color makes you see red, you need a color-management system. Here's how ColorSync 2.0, combined with a handful of tools, can help give you predictable color from start to finish.

BY BRUCE FRASER

What color is cinnabar anyway? Or java? How about moss? If you've ever ordered clothes from a mail-order catalog, you've discovered that the manufacturer's idea of those colors wasn't quite the same as yours. And you've probably also learned that selecting garments based on color swatches pictured in the catalog can lead to unexpected surprises when your package finally arrives.

Color is a slippery and subjective thing — it's something that happens only inside our heads, after all — so it's no surprise that when we talk about color, misunderstandings often arise. No two people see color in exactly the same way, and our color perception also changes over time, influenced by obvious factors such as age as well as by much more subtle ones such as the amount of coffee we've drunk and whether or not we've just had a fight with our editor — believe it or not, the expression *seeing red* contains more literal truth than you may think.

Trying to make another person understand what you mean by *red* is difficult enough. Trying to make a printing press understand what your scanner or monitor

PHOTOGRAPHY / STEVEN UNDERWOOD; PHOTO MANIPULATION / MARK SWEENEY



means by *red* is even more difficult. They're nothing more than dumb machines that do what we tell them to. Even worse, when it comes to color, we don't speak the same language as they do and they don't speak the same language as each other — *red* is just as abstruse as *cinnabar* as far as computers are concerned. The machines have a very limited vocabulary — scanners and monitors understand only RGB values, printers and presses understand only CMYK percentages, and none of them represent color unambiguously. The result is that our printed color output is often as full of surprises as the box that came from the mail-order clothing company.

And that's where a color-management system (CMS) comes in. Color-management systems — technologies that help ensure that color remains consistent from scanner to monitor to printer — have been the buzz of the publishing industry for a couple of years now, but initial attempts fell short. Lacking an agreed-upon standard, vendors created proprietary systems that undercut progress toward universal color. But now, with Apple's ColorSync 2.0 and a handful of software and hardware tools that support it, it's become possible to tame the color beast.

Synchronized Winning

ColorSync is three things: a complete CMS; an individual extension; and most important, an architecture that makes color management a service provided by the operating system. The basic principle behind ColorSync is the same as that used by other color-management systems. It uses a *reference color space,* CIE Lab, which is

based on the way we actually see color, and *device profiles* that describe what color in the reference space corresponds to the various RGB or CMYK values we send to the device. The upshot is that ColorSync can predict the color we'll see when we send a given set of RGB values to a monitor or CMYK values to a printer, and it can automatically adjust those values so we see the same color on both, or at least get the closest match possible within the limits of the devices.

The first iteration of ColorSync wasn't very useful. ColorSync 2.0 is better than its predecessor in many ways, but probably its single most important feature is the introduction of the ICC (International Color Consortium) device-profile format. The ICC format has been agreed upon by virtually all the players in the color-management arena as well as by the most-important operating-system vendors, including Apple and Microsoft. It's the native profile format for ColorSync 2.0, and other color-management-system vendors, including Agfa and Kodak, have announced their intention to support it in future versions of their software. As a result, it's an open system (see the "Plug-and-Play Color" sidebar).

The emergence of ICC as a common, cross-platform standard has provided the impetus for a slew of third-party vendors to produce custom profiling tools. Why are custom profiles important? Any color-management system is only as good as the device profiles it uses — the files that tell the system what color a scanner or printer really means by a given set of RGB or CMYK numbers — and with previous color-management systems, for the most part, we've had to rely on generic, or canned, profiles from vendors.

Using canned profiles leads to several problems. If your favorite scanner or printer isn't one of the ones for which a vendor makes a profile, you're out of luck. Profiles are often expensive, and they work only with a particular vendor's color-management system — you can't use a scanner profile from Kodak with an output-device profile from Agfa, for example. And canned profiles are often inaccurate: They may accurately describe the behavior of the specific device the vendor measured, but the chances that the device you're using behaves in exactly the same way vary from quite good (in the case of a stable proofing system such as the 3M Matchprint) to very poor (in the case of an unstable device such as a monitor). In addition, printer profiles are made for a specific paper stock: If you use paper that absorbs more ink or that is a brighter white, the profiles may be quite inaccurate.

Custom profiling means that you can create accurate profiles for your unique situation — your monitor and lighting conditions; your specific desktop printer and favorite paper stocks; and even the printing press, paper, and ink combinations you use most. You don't have to pay for profiles — you simply create them as needed — and you can profile any device.

Plug-and-Play Color

COLORSYNC 2.0 HAS BEEN AVAILABLE for almost a year, but only in the past few months have we been able to use it for anything more useful than printing PICT files from SimpleText. The LaserWriter 8.3 driver supports ColorSync color matching of the printer to the monitor at print time, but only for those applications that don't create their own PostScript. That, of course, excludes most of the applications we actually use for color printing.

Most of the major color-publishing applications don't support ColorSync directly yet, but Live Picture 2.5 does and Quark has announced ColorSync support for QuarkXPress 4.0 and QuarkXPosure. The modular color-management architecture of Adobe PageMaker 6.0 makes ColorSync support only a matter of time.

Meanwhile, several third-party products exist that help make ColorSync a regular part of the desktop color work flow:

Adobe Photoshop. Apple's free ColorSync Plug-In for Adobe Photoshop lets you acquire, transform, and export TIFF images in Photoshop. The Acquire TIFF with ColorSync profile lets you open an image with a source-device profile and transform it on the fly to a destination-device profile's color space. The ColorSync filter lets you transform an image from one RGB profile to another or from one CMYK profile to another.

A. Scanner RGB to monitor.

For images scanned on a calibrated scanner, you can designate the scanner's profile as the source and your monitor's profile as the destination, which lets you correct the image, relying on the screen display.

B. Scanner RGB to output.

If you simply want to reproduce the original as exactly as possible, you can specify your output device's profile as the destination instead.

C. Generic RGB.

For RGB images from an unknown source, such as those supplied on CD-ROM, or for RGB images you've corrected by using the screen display as your reference, you make the monitor profile the source profile.

D. RGB to CMYK.

To convert images to CMYK, you designate the scanner or monitor profile as the source profile and whatever output device (a desktop color printer, a proofing system, a press, or even another monitor) you're sending the image to as the destination profile.

E. RGB to CMYK to CMYK.

You can also use a three-profile color transform, making one device simulate the behavior of another — for example, using a desktop color printer for preproofing press output. In this case, you'd use your scanner or monitor profile as the source profile, your final output profile as the destination profile, and your desktop-color-printer profile as the proofing profile. ColorSync tweaks the color to make your desktop printer simulate the press.

/ integrating ColorSync into your work flow

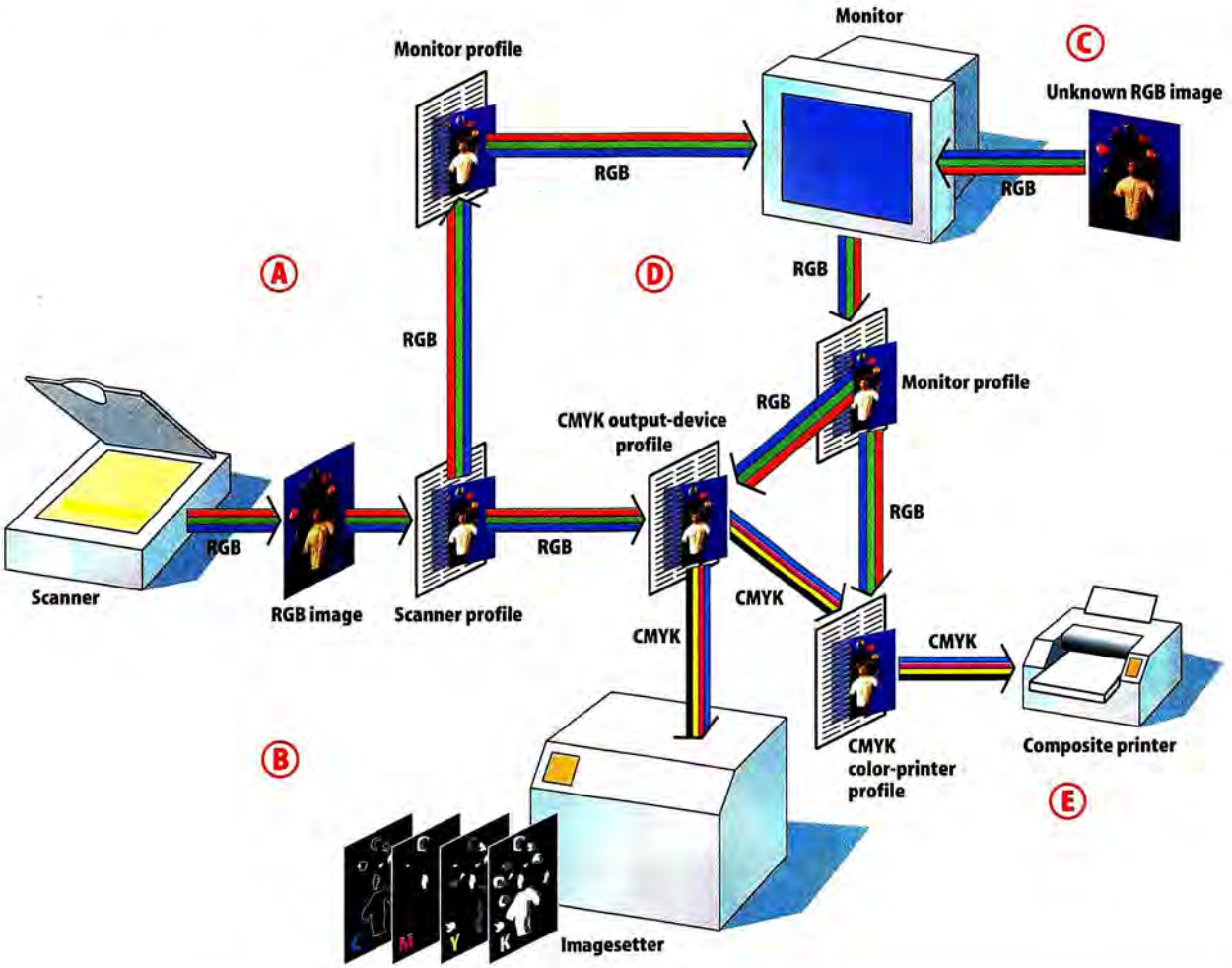
The Export TIFF with ColorSync profile lets you export a TIFF image from Photoshop in four ways. You can embed a profile, which becomes the source profile for the image. You can apply a source-to-destination-profile transform, which lets you make automatic color separations. You can cross-render an image for proofing, specifying a source, a destination, and a proofing profile. Finally, you can apply a Custom match, which lets you concatenate many profiles. For example, to view on your monitor how a scanned image would look on a dye-sub printer simulating a press, you'd specify the scanner profile, the press profile, the dye-sub-printer profile, and the monitor profile, in that order.

QuarkXPress. The HELIOS ColorSync 2.0 XTension for QuarkXPress, from the German company HELIOS Software but sold in this country by European Mikrograph, adds ColorSync support to QuarkXPress 3.31 and later. It lets you specify a source profile for each image, a source profile for all Quark-defined CMYK colors, a final output profile, and a proofing profile. When you print separations, ColorSync creates separations for the final output device, and when you print to a composite color printer, ColorSync simulates the final output on the composite printer, using the proofing profile. You can also turn on color matching for the monitor, which uses the ColorSync system profile to display all colors accurately on-screen.

Pantone ColorDrive 1.5. ColorSync 2.0 isn't just for images; it also helps with spot-color matching. Pantone has created a powerful front end for spot-color matching, in the form of ColorDrive 1.5, which allows you to create and export calibrated spot-color palettes containing Pantone or user-defined colors (including colors you measure with a spectrophotometer such as the Colortron II). The palettes can be in any of a variety of formats, readable by almost every DTP application. ColorDrive also includes a Quark XTension that lets you import calibrated colors from and export them to ColorDrive and that lets you create drag-and-drop applets called EPS Converters that can apply transforms to Illustrator-format files. For example, if the colors in your Illustrator file were specified for a four-color press, you could use the appropriate applet to create a transformed version of the file that would print the colors correctly on a desktop color printer.

ColorSync supports several kinds of color matching, each useful for a particular purpose. In each case, you use device profiles to tell ColorSync where the image came from (the source) and where you want it to go (the destination).

You can use different combinations of source and destination profiles in order to work with color in various ways. Here are some possible work flows:



Color Our World

All this sounds great in theory. To see if it works in practice, *MacUser* tested currently available tools that allowed us to create custom ICC profiles. We must stress that all the technology involved is in its early stages of development. Apple has only just released the plug-in for Adobe Photoshop that we used to apply the ColorSync transforms to the images. Of the measuring instruments we used, almost all — the Colortron II, from Light Source, and the Digital Swatchbook (also known as the DTP 22) and the Monitor Optimizer (a.k.a. DTP 92), from X-Rite — are brand-new. And the two profiling packages we used — ColorSynergy 1.1, from The Color Partnership, and ColorBlind 2.1.1, which comes in Color Solutions' ColorBlind Color Management System — underwent several revisions during our testing. Many more products were waiting in the wings too (see the "Scanning the Horizon" sidebar).

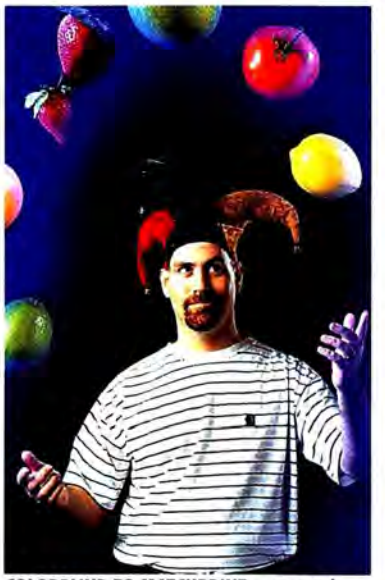
We built profiles for our scanner, the monitors on which we do our color correction, the Matchprint proofing system our service bureau uses, and the press and paper on which *MacUser* is printed. We also created profiles for several desktop printers to see if we could obtain a more accurate rendition of the color we expected from

Manageable Color / putting ColorSync to the test

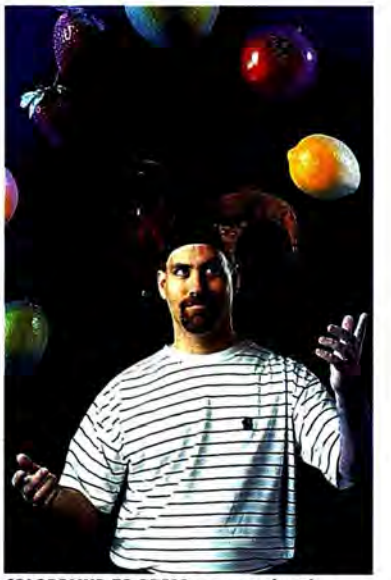
CAN AN IMAGE color-managed with ColorSync and custom profiling tools match one separated conventionally? You be the judge. *MacUser's* prepress house scanned a 4-x-5-inch transparency on a drum scanner directly to a CMYK file and then performed manual color correction. To obtain the four ColorSync files, we scanned the transparency on a midrange flatbed scanner for which we had created profiles in ColorBlind and ColorSynergy. We opened the same raw RGB file in Photoshop and exported it via Apple's ColorSync Export filter, designating the scanner profile as the source and the output-device profile as the destination. Finally, we opened the resulting CMYK files in Photoshop and applied sharpening.



CONVENTIONAL SEPARATION: separated and color-corrected at Applied Graphics Technologies, *MacUser's* prepress house



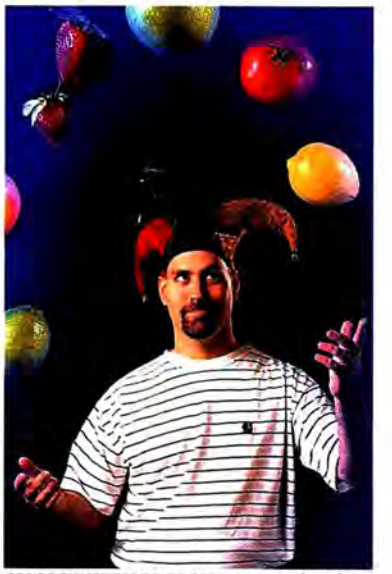
COLORBLIND TO MATCHPRINT: separated with a ColorSync output profile created in ColorBlind from a Matchprint color proof



COLORBLIND TO PRESS: separated with a ColorSync output profile created in ColorBlind from printing-press output



COLORSYNERGY TO MATCHPRINT: separated with a ColorSync output profile created in ColorSynergy from a Matchprint color proof



COLORSYNERGY TO PRESS: separated with a ColorSync output profile created in ColorSynergy from printing-press output

the press. As you can see from the accompanying images, we got mixed results, but the successes are very encouraging and the failures point to areas in the profiling tools that need further work, not to any fundamental limitations of ColorSync.

Scan Artist

Building a scanner profile is relatively simple with both ColorSynergy and ColorBlind. You first scan an industry-standard IT8 target — ColorSynergy comes with a paper target, and ColorBlind has paper and transparency targets (the latter in 35mm and 4-x-5-inch sizes). Each target is accompanied by a reference file containing factory-measured values for each color patch in a color space such as CIE Lab. To create the scanner profile, you open the scan of the target and its associated reference file in the profiling application. The application then looks at how the scanner has recorded each patch and finally builds a model of the way the scanner "sees" each color.

The advantage of profile-driven scanning is that it becomes an automatic process. You simply scan each image at the same settings you used to create the profile. But this is also its main limitation. The benefit of a scanner that can handle more than 24 bits of color is that it lets you make corrections to an image during the scan, so you end up with the optimal 24-bit RGB representation. But if you do make corrections during the scan, you're changing the way the scanner sees colors, so your profile becomes invalid. A workable compromise is to create a profile for each of various scanner settings — one for very bright (high-key) images, another for very dark (low-key) images, and one for normal images.

The Screening Room

We were able to create good scanner profiles with each program with no difficulty. Monitor profiling, on the other hand, turned out to be much more complicated. Ideally, we wanted to be able to set our monitors to the D50 white-point proofing standard — the lighting used in light booths at every print and prepress establishment in the land — and to a gamma of 1.8, which best matches the contrast range obtainable in print.

ColorSynergy and ColorBlind don't have any facilities for setting the white point or the gamma — they either measure the monitor's color values via the X-Rite Monitor Optimizer (ColorSynergy can also use the Light Source Colortron II) or allow you to type in values for the white point, the gamma, and the phosphor chromaticity. ColorSynergy offers a visual target to aid you in estimating the gamma; with ColorBlind you're completely on your own.

Setting the monitor to known white-point and gamma values manually opens up several possibilities and quite a few cans of worms. We had reasonable success simply measuring the monitor's color values with ColorSynergy, using either the Monitor Optimizer or the Colortron II, but when we attempted to set the monitor to something other than its raw state, we obtained profiles that produced strange shifts in color and contrast. We tried setting the monitor visually, using Adobe's Gamma control panel, and also with a variety of hardware monitor calibrators and with the Colortron Calibrator software that comes with the Colortron II. ColorBlind produced even stranger results, with the raw monitor as well as with all the third-party calibrators.

In the end, we obtained the best monitor profiles with a Radius ProSense hardware calibrator and the Colortron Calibrator software, both of which produced excellent results.

Colored Paper

Profiling output devices is by far the most complex task — it takes us into the world of spectrophotometry and colorimetry, of CIE XYZ and delta-e's. The process is essentially the reverse of scanner profiling: You print a target containing known CMYK values and then measure it with an instrument that can produce readings in a color space such as CIE Lab. Actually, ColorSynergy lets you create output profiles very easily, using a calibrated flatbed scanner as your measuring device. Within limits, this approach works well. If you're simply trying to get better-looking output from a low-end inkjet printer, we recommend it with little or no hesitation. But for more-demanding work, some kind of measuring instrument is a necessity. Here, ColorBlind and ColorSynergy take very different approaches.

ColorBlind relies exclusively on X-Rite's DTP 51 Auto Scan Colorimeter, a $2,695 device that comes with the program and makes up a good chunk of the system's hefty price tag. No instruments come with ColorSynergy, but the program supports a variety of spectrophotometers and colorimeters, including the relatively low-cost Light Source Colortron II and X-Rite Digital Swatchbook and going all the way up to high-end spectrophotometers that have price tags well into five figures, such as the Gretag SPM-50 (see the directory for pricing information).

Measuring the ColorBlind target with the DTP 51 Auto Scan Colorimeter is a snap, even though the target contains more than 800 patches. The DTP 51 is a "strip reader" — you cut the printed target into strips 6 patches wide and then insert the strips into the unit, which feeds the paper through as it reads the patches. On tabloid-sized paper, the target contains 16 rows of patches; on letter-sized paper, it contains 45 rows. The strip reader can accommodate strips 6 rows wide, so you have a lot less cutting and feeding to do with a tabloid-sized target than with a letter-sized one. But even with the letter-sized target, measuring all the patches takes less than 15 minutes.

Taking measurements with ColorSynergy is much more laborious (unless you simply use a scanner). The ColorSynergy target for CMYK printers contains 504

Scanning the Horizon / what lies ahead in color management

THE RECENT EMERGENCE OF THE ICC profile format as a cross-platform standard for device profiles is bringing far-reaching changes to the color-management field. Established CMS players such as Agfa and Kodak are in the process of converting their existing profiles to ICC format and are also working on ColorSync-compliant color-management engines. When both these changes have been accomplished, color-management systems will be truly interoperable.

The various color-management engines will coexist inside the ColorSync architecture, so that, for example, when a Kodak device profile is used, the system will first look for the presence of the Kodak color-management engine and, if it finds it, will use that engine for the transform. Since color management is provided as a service by the operating system, applications will no longer have to call the color-management system directly, which should both simplify and accelerate the support for ColorSync among application vendors.

At the same time, the common format for profiles has spawned a slew of new ICC-compatible profiling tools, particularly tools for profiling output devices. All use the same basic principle — printing a target containing known values and then measuring the result with a colorimeter or spectrophotometer — but the ones already announced differ in the number of patches in the printed target and in the measuring instruments they support.

MonacoPRINT, from Monaco Systems, uses a target containing no fewer than 810 patches and comes with an X-Rite DTP 51 Auto Scan Colorimeter, the only measuring device the program directly supports. The X-Rite device reads strips of patches much faster than does a handheld instrument, so measuring times remain reasonably short, despite the large number of patches. A companion product, MonacoCOLOR 2.0, offers profiling for scanners and digital cameras and a set of Photoshop plug-ins for applying color transforms.

Linotype-Hell's PrintOpen ICC uses only 212 patches for CMYK output profiling and supports a wide range of handheld measurement devices, ranging from low-cost spectrophotometers such as the X-Rite Digital Swatchbook and the Light Source Colortron II to instruments with five-figure price tags from Gretag and X-Rite. Light Source and Linotype-Hell have announced a bundle containing PrintOpen and a Colortron II. Linotype-Hell has also announced ScanOpen ICC, a software package for profiling scanners.

RIT Research's Profile/80, with an expected list price of $395, will be both the low-cost leader and the application that will use the fewest patches to create a profile — the target will contain only 80 patches, hence the product's name. Profile/80 is designed to work exclusively with the Light Source Colortron as its measuring instrument.

Instrumentation giants Gretag and X-Rite are also going to enter the fray in 1996. Gretag's ProfileMaker package will use software that was developed by the German company Logo and will work only with Gretag's measuring instruments: the SpectroLino, a $7,400 handheld device designed to compete with the Colortron and the Digital Swatchbook, and the SpectroScan, a $4,700 motorized XY-table reader that automates the SpectroLino. Additionally, X-Rite will reportedly ship a family of products based on the Monitor Optimizer and the DTP 51 Auto Scan Colorimeter.

patches, and you have to position the measuring foot of whatever instrument you're using by hand over each one. For most of our work, we found that the main difference among the three measuring instruments we used — the X-Rite Digital Swatchbook, the Light Source Colortron II, and the Gretag SPM-50 — was not in accuracy but in speed. The Colortron II is considerably slower than the other two instruments, taking about five seconds to read each patch. The Digital Swatchbook and the SPM-50 each take less than two seconds. ColorSynergy displays the target on-screen and shows you which patch to measure next, although you can select any patch for measuring simply by clicking on it.

We liked the convenience of ColorBlind's measuring system, but the profiles we obtained were disappointing. The Matchprint and press profiles both displayed a strong cyan cast, which we were able to improve slightly, but not eliminate, by dint of a great deal of hand-tuning with ColorBlind's powerful but nonintuitive (and largely undocumented) profile editor.

ColorSynergy fared much better, producing very useful press and Matchprint profiles, using the default settings. The only hand-tuning we did was to change the total-ink limit and to adjust the black-generation curve slightly, both of which are easy to do with the profile editor. As you adjust the black curve, the cyan, magenta, and yellow curves change interactively and the ink percentages for neutral tones are displayed in the profile editor's window.

Both programs fell short when it came to profiling a CMYK dye-sub printer. To create a CMYK profile, you have to specify the desired total-ink limit and the black-ink limit. Four-color dye-sub printers present a special challenge. It might seem that you could use 400-percent total ink — since the pigment is a vaporized dye, there's no danger of its saturating the paper, making it easier to tear — but most four-color dye-sub printers reach a point at which adding more ink actually makes the color lighter rather than darker, because the heat vaporizes some of the dye that's already been laid down. Finding the ideal amount of total ink for a dye-sub printer and the ideal amount of black ink relative to cyan, magenta, and yellow is probably beyond the capabilities of any automatic profile generator.

ColorBlind's profile for the dye-sub printer was simply hopeless, with major problems in both tone reproduction and hue. ColorSynergy was plagued with subtler problems, mostly sudden tonal shifts in the shadows. We were able to get a reasonably good profile by experimenting with the black curve and the ink limits, but the profile still behaved in unexpected ways in dense shadows on some images.

Measuring dye-sub output was also the only area in which we noticed a significant difference among the Light Source Colortron II, the Gretag SPM-50, and the X-Rite Digital Swatchbook. Results from the Colortron II agreed very closely with those derived from the SPM-50 at ink densities up to around 2.0 — in most cases, the

ink-density measurements matched those of the more expensive instrument within 1 delta-e. (A delta-e is a unit of color difference — 1 delta-e is the smallest color difference someone with normal color vision can perceive.) The Digital Swatchbook's measurements weren't quite as close but were generally within 2.5 delta-e's of the SPM-50's.

At higher densities (on very dark colors), the differences were more pronounced, although again the Digital Swatchbook disagreed with the SPM-50 rather more than did the Colortron II. We tend to accept the SPM-50's values as being correct, partly because the SPM-50 is a much more expensive instrument but also because it displayed much less variation in successive readings of the same patch. If you're profiling a press, inkjet or thermal-wax printers, or a laminated-proofing system such as 3M's Matchprint, the differences among the instruments are too small to worry about. However, profiling output devices that have a higher density range, such as dye-sub printers or film recorders, may prove too challenging for the less expensive spectrophotometers.

In many cases, profiling the actual press may be unnecessary — profiling just the proofing system can produce acceptable results. But most laminated-proofing systems are set up to emulate SWOP (Specifications for Web Offset Publications) standards, specifying SWOP inks and a simulated dot gain of around 20 percent. This setup doesn't provide a particularly good match for most commercial sheetfed presses, for which a dot gain of 20 percent would be unthinkably high, nor is it useful for newsprint, for which a 20-percent dot gain would be ridiculously optimistic. It's difficult to draw firm conclusions on the basis of a single press run, but the press-specific profile we generated with ColorSynergy seemed to do a better job of replicating the colors in the original than did the Matchprint profile.

True Colors?

ColorBlind and ColorSynergy are the first two ICC profiling packages out of the gate, but expect to see many more soon. It's unusual for a $495 package to beat an $8,500 one, but ColorBlind needs a lot of work before it will be useful. It promises "perfect color with your eyes closed" — unfortunately, it doesn't seem to do so well when you have your eyes open. ColorSynergy, in contrast, shows a great deal of promise, particularly when used with low-cost spectrophotometers. It needs much better documentation to guide novices through some of the intricacies of arriving at optimum settings and the monitor part of the equation seems to need improvement, but it's clearly a useful adjunct to ColorSync. We look forward to seeing more such efforts. They're a sure sign that color management is finally beginning to come of age.

Bruce Fraser is a self-confessed color geek who authored the first hands-on study of off-the-shelf color-management systems, in 1993. He is coauthor of *Real World Photoshop 3*.

DIRECTORY / tools for color management

Color-Management Software

Agfa Division of Bayer
Richfield Park, NJ
800-809-2432
201-440-2500
http://www.agfahome.com
FotoTune, $795

Apple Computer
Cupertino, CA
408-996-1010
http://www.austin.apple.com/macos
ColorSync 2.0, free
ColorSync Plug-In for Adobe Photoshop, free

European Mikrograph
Scotts Valley, CA
408-461-6061
408-461-6056 (fax)
http://www.helios.com
HELIOS ColorSync 2.0 XTension for QuarkXPress, $400

Pantone
Carlstadt, NJ
800-222-1149
201-935-5500
201-896-0242 (fax)
http://www.pantone.com
ColorDrive 1.5, $199

Profiling Tools

The Color Partnership
Del Mar, CA
800-554-8688
619-259-8688
info@colorpar.com
ColorSynergy 1.1, $495

Color Solutions
Cardiff by the Sea, CA
619-436-6593
619-436-6594 (fax)
colorblind@color.com
ColorBlind Color Management System, $8,500

Gretag Color Control
Chicopee, MA
800-637-0010
413-593-6900
413-593-3577 (fax)
75140.715@compuserve.com
Gretag ProfileMaker, $6,600

Linotype-Hell
Hauppauge, NY
800-842-9721
516-434-2000
516-434-2748 (fax)
info@linotype.com
PrintOpen ICC, $1,595
ScanOpen ICC, $1,195

Monaco Systems
Andover, MA
508-749-9944
508-749-9977 (fax)
gamonaco@aol.com
MonacoCOLOR 2.0, $895
MonacoPRINT, $4,995

RIT Research
Rochester, NY
716-239-6000
716-239-6019 (fax)
Profile/80, $395

Color-Measurement Devices

Gretag Color Control
Chicopee, MA
800-637-0010
413-593-6900
413-593-3577 (fax)
75140.715@compuserve.com
SpectroLino, $7,400
SpectroScan, $4,700
SPM-50, $11,000

Light Source
Larkspur, CA
800-994-2656
415-925-4200
415-461-8011 (fax)
Colortron II, $1,295

X-Rite
Grandville, MI
800-792-8241
616-534-7663
616-534-5832 (fax)
Digital Swatchbook (DTP 22), $1,345
DTP 51 Auto Scan Colorimeter, $2,695
Monitor Optimizer (DTP 92), $895

For Your EYES Only

DEFEND YOUR DATA AGAINST PRYING EYES WITH THESE SECURITY-SOFTWARE PACKAGES.

By Howard Bornstein



Whether you drive a beat-up Buick or a brand-new Mercedes-Benz, chances are you never leave your car without locking all the doors. And you probably don't go to bed at night before securing your home against intruders. So why do you leave your data unprotected?

No one knows how many kids accidentally erase their parents' hard disk each year or how many employees rifle through their coworkers files, but incidents such as these *do* occur. These days, you don't have to work for the CIA to consider protecting your files with security software. That's why we've tested, rated, and reviewed 18 security-software packages that let you lock your personal files and keep your confidential data under wraps.

To ensure you're getting real protection and not just smoke-screen security, we evaluated each package based on its features, ease of use, stability, and price. We know that home users don't have the same security needs as managers of high-school computer labs, so we divided the products into categories based on user profiles. Although we do rate all the packages, we've opted to save you time by elaborating on only the best — and the worst — products. For details on all the products, check out the "Security Software Scrutinized" table. Read on to find out which type of protection you should be using.

The Locks That Mac Built

Originally billed as the model of simplicity, the Mac was never designed for CIA-level security needs. In an attempt to make computing personal, the Mac's designers made file and folder access easy, not hard. But although the Mac doesn't exactly come surrounded by a barbed-wire fence, it does offer minimal security options.

System 7.5's General Controls control panel lets you lock the System Folder and a special Applications folder, which you create when you turn locking on. Items in the protected folders can't be moved, deleted, or renamed. Alternatively, you can lock files and folders in the Finder by selecting them, choosing Get Info from the File menu, and checking the Locked check box. Locking a file prevents it from being renamed, changed, or accidentally thrown away. But both these safeguards protect you from *accidents* rather than intentional action. Anyone out of diapers can bypass these security measures simply by turning locking off.

A third security option provided by the Mac OS is file sharing. Although designed mainly for network use, file sharing can be used to set access privileges for private folders. But be aware that this doesn't protect their contents — just the folders themselves. Anyone can read or make changes in your files; they just won't be able to delete or move a folder or change its name.

The safeguards built into the Mac OS are designed to protect you from yourself. If, however, you're more worried about what damage *other* people can do to your system — accidentally or otherwise — then you need a security program.

Security Starts at Home

It was an ordinary home, in an ordinary city. Who would imagine that disaster was about to strike? When six-year-old Sheila clicked on Erase in the Erase Disk dialog box, how was she to know that she was deleting your first novel and two years' worth of financial data you'd never gotten around to backing up? You can prevent such crises by kidproofing your Mac, much as you do electrical outlets and kitchen cabinets.

The best way to prevent your kids from accidentally erasing data is never to leave them alone with the Macintosh. But what if you need to step away for a few minutes? Try using After Dark, the ubiquitous screen

PHOTOGRAPHY / GIAMPIERO BENVENUTI


Order Entry
Monthly Income and Expenses
Net Savings and Expense Comparison

saver from Berkeley Systems. After Dark comes with a security option that can lock your screen after a user-determined period of nonuse or, if you press a hot key, immediately. Once you've locked your screen, you need a password to get back into your system. No password — no access. Your curious kid can pound away on the keyboard without wiping out your data.

This is sufficient protection against a four-year-old, but anyone with a little bit of Mac savvy can get past this trick merely by restarting the Mac from a floppy disk or by turning off the extensions at startup. If you have older children, neighbors, or even a spouse using your computer, you may want to make your defense system harder to bypass. You'll probably also want more control over exactly what items you lock up. If that's the case, take a look at Berkeley Systems' Launch Pad Kid-Safe DESKTOP or Apple's At Ease, which is distributed by Claris.

Launch Pad replaces the Finder with gamelike work environments you can customize for each child who uses the computer. Children can explore several animated worlds and run only the programs and documents you've preselected. Meanwhile, the rest of your data and applications stay completely hidden and protected.

Unlike with After Dark, users can't sneak around the security measures Launch Pad puts up just by turning off the extensions at startup. However, they *can* disable the security features by booting from a floppy. At Ease, on the other hand, doesn't let users bypass its security by using either of these methods.

Like Launch Pad, At Ease provides an alternative to the Finder. A simple tabbed-card interface that has large buttons for applications and documents allows users to access a restricted work area. However, if you prefer the traditional Mac look, you can opt to forgo the At Ease interface when you set up user passwords and access levels and still get the same protection. One time-consuming drawback of At Ease is that the Mac needs to be restarted with every new user.

THE BOTTOM LINE

KEEPING A SECRET CAN BE TOUGH, especially when other people have access to your computer files. Fortunately, a slew of personal security packages will help you keep your skeletons hiding safely in their closets. We've based our ratings on each product's ability to reliably serve its users through ease of use, features, and affordability.

+ / OUTSTANDING ● / ACCEPTABLE − / POOR

RATING	PRODUCT	PRICE	EASE OF USE	FEATURES
4½	**ultraSECURE 3.541** BEST BUY	●	+	+
	ultraSECURE (list price, $239; estimated street price, $165) will have corporate security buffs drooling over its endless array of features. High-speed encryption and decryption save you time but not money. Not for the average home user, this high-end security package will cost you a high price.			
4½	**UnderCover File Security 1.0** BEST BUY	+	+	●
	UnderCover File Security ($59 direct) provides a simple, secure way for you to protect your hard disk's contents. Easy-to-use features include encryption and invisible, locked file boxes. Best of all, you don't have to log on every time you want to access your hard disk.			
4	FileGuard 3.0	●	+	+
4	FoolProof Security 2.5	+	+	●
4	Launch Pad Kid-Safe DESKTOP 1.0	+	+	●
4	Mac Manager 3.0	+	+	●
3½	At Ease 3.0	●	+	●
3½	cypherPAD 1.215	+	●	●
3½	DiskGuard 1.5	●	+	●
3½	NightWatch II 2.6	●	+	●
3½	Norton DiskLock for Macintosh 4.0	●	●	+
3½	ultraSHIELD 2.541	●	●	+
3	Empower 5.03	●	●	●
3	Empower Professional 5.03	●	●	●
2½	Folder Locker 1.3	●	●	−
2½	FolderBolt Pro 1.03	●	●	●
2½	Mac Control 2.1	●	−	●
2	After Dark 3.0	●	+	−

LISTING IS ALPHABETICAL WITHIN GROUPS OF EQUAL MOUSE RATINGS.

The School of Hard Knocks

Imagine yourself as the harried manager of a high-school computer lab. You're responsible for the upkeep of about 25 high-traffic computers. New students log on every time the bell rings, and you need to keep the machines running. To eliminate job stress, you need a security program that will stop kids from deleting files and programs and mucking around with the contents of the hard disk.

FoolProof Security, from SmartStuff Software, is perfect for reining in unruly students. For example, you can customize FoolProof so that students are forced to save their files onto floppies, thus keeping the hard disk free of clutter. If you're afraid students will use their floppy access to turn the lab into a game room or load programs that may contain viruses, you can set up FoolProof so it won't allow applications to run from floppies.

Another feature of FoolProof lets you create a folder that students can dip into to run applications without allowing them to delete, copy, or move any of the folder's contents. You can also regulate desktop decor by restricting access to various Finder menu items such as those that let you make aliases or create new folders.

If merely locking folders won't do the trick, you might try DiskGuard, from ASD Software. DiskGuard requires users to log in with a password, which allows for two levels of access: one administrator (that's you), who calls all the shots, and a large number of guests. You have control over what files and folders users are allowed to access once they log onto the computer.

DiskGuard works on a variety of media, which is handy in these days of rapidly changing storage standards. Most security software works only with the hard disks of SCSI drives, but DiskGuard is also compatible with disks in the new IDE drives and removable cartridges such as Bernoulli, SyQuest, and Iomega's Zip cartridges. And — unique to DiskGuard — you can password-protect a floppy disk if you want to keep your data both mobile and private.

Another program designed with shared-Mac environments in mind is ELS' Mac Manager, a program that stands out thanks to its colorful Copland-style Finder windows. Users can customize their

The Security Risk / crashproofing your Mac

SECURITY PROGRAMS ARE NOT RISK-FREE. Security software protects your system by patching the Mac OS and disk drivers or by writing special data structures to your disk. With the software working at such a low level with so many combinations of Mac OS versions and disks, it's not unusual to experience crashes or other strange behavior once you've installed security software. Here are our tips for making your Mac crashproof:

BACK UP YOUR DATA. The best tip we can offer is this simple one: Back up all your data to an unprotected disk before installing any security software. And don't erase the backup until you're sure your new software works reliably.

CHECK YOUR DISK. If there are problems with your disk's structure, installing security software can cause you to irrevocably lose data. Minimize this danger by giving your hard disk a checkup with a program such as Apple's Disk First Aid before you install security software. Disk First Aid comes with every Mac as part of its system software, so you should already have it on hand.

BE AWARE OF INCOMPATIBILITIES. Many security packages work by modifying or replacing the disk driver — the software that controls the physical reading of data from the disk and the writing of data to it. This makes most security packages incompatible with driver-level compression programs such as Stac Electronics' Stacker. However, file-level-compression programs such as Symantec's AutoDoubler and Now Utilities' Now Compress work with most security software.

KNOW WHEN TO LET DOWN YOUR DEFENSES. If you update your disk driver, optimize your hard disk, or troubleshoot your disk with a disk-repair utility such as Norton Utilities' Disk Doctor, you'll need to temporarily remove your software protection. Otherwise, you may suffer system crashes and file losses.

CLEAN UP YOUR MESS. If you stop using a security program, use its installer to remove the program from your disk. In many cases, simply dragging the program to the Trash won't remove the special data structures such a program places on your hard disk. If you're not careful, they may come back to haunt you when you least expect it.

MAKE SURE THE PRODUCT COMES WITH A MONEY-BACK GUARANTEE. Even if you take all these precautions, you may still experience instabilities the vendor's tech-support personnel can't resolve. In that case, we recommend returning the product and trying another. All the products we reviewed come with a money-back guarantee.

windows with a variety of styles, colors, fonts, and icon sizes. But the program is far from being all style and no substance.

Aside from providing standard features such as password protection and centralized control over access to the System Folder, the Apple menu, and applications, the program sports several special features. For example, many school labs, underfunded and overused, have students waiting in line to use the machines. Mac Manager assists with crowd control by letting you set limits on how much time each user has on the computer. To cut back on paper costs, users can also be restricted in the number of pages they can print out. And Mac Manager lets lab administrators restrict students' ability to open applications from a floppy or save files onto one. In addition, the program can be configured to reject attempts to insert disks or eject otherwise easy-to-steal CD-ROMs.

We far prefer Mac Manager to BDW Software's Mac Control. Mac Control offers many of the same features as Mac Manager but without the pizzazz. And even more damaging, Mac Control's awkwardly designed interface makes it much harder to use than necessary.

One product we didn't test, Apple's recently updated At Ease for Workgroups 3.01 ($225), big brother to At Ease, provides simple but efficient multiuser security. Easy to use for administrators and students, this classroom edition of Apple's home security program provides centralized control over file, folder, hard-disk, and control-panel access while supporting up to 4,000 users (see Quick Clicks, January '96, page 68).

Social Security

You are the president of a Fortune 500 corporation. Breached confidentiality can mean the loss of hundreds of thousands of dollars or maybe even a lawsuit. So you're feeling insecure about your security.

You'll feel much more confident if you have a program such as ASD Software's FileGuard guarding your goods. FileGuard establishes three user levels: administrator, user, and guest. The administrator can adjust each level to dictate which programs and documents users can work with. The administrator also has the power to lock any combination of internal and external hard disks. For added security, a screen saver locks the system when the user is absent and a detailed activity log keeps tabs on any Peeping Toms. Unlike After Dark, this screen saver can't be bypassed by startup from a floppy disk.

Magna's Empower Professional, the multiuser version of Empower, and Symantec's Norton DiskLock for Macintosh, provide similar but less extensive, corporate-level features. (At press time, Symantec announced a new version of DiskLock with a large array of features that promise to rival those of FileGuard.) Some people, however, may prefer DiskLock for its relatively lower price.

No matter how capably a program locks a folder, determined and experienced hackers may be able to break through. To be doubly safe, you should use encryption to scramble the contents of data files, so that even if intruders get to your files, they won't be able to read them. DiskLock, Empower Professional, and FileGuard provide encryption along with access control.

All three programs offer U.S. government standard DES encryption. The programs also provide proprietary encryption algorithms that are a little less secure than DES but that operate much faster. If you've ever spent time twiddling your thumbs while encrypting or decrypting a file, you'll appreciate the time savings.

However, if your company is less worried about hackers and more concerned about the flood of consultants and temps constantly logging onto the system, you may want to consider NightWatch II, from Kent Marsh. NightWatch II allows you to restrict not only which files a user can work with but also *when*. For example, if you don't want consultants using the computer after 5 P.M. or on the weekend, it's easy to set up NightWatch II with these limits. Although NightWatch II works with many removable cartridges, we could not get it to run with cartridges for the SyQuest EZ135 drive.

It's inevitable that someone will forget the password the same day as the system administrator is sick. NightWatch II keeps you from losing a full day's work by using a key-disk scheme. A key disk acts like the master key to a building: Inserting it can unlock any computer you've protected with NightWatch II. However, if this key disk

SECURITY SOFTWARE SCRUTINIZED / finding the features you need the most

	COMPANY	LIST PRICE	ESTIMATED STREET PRICE	DISK CONTROL	FOLDER CONTROL	FILE CONTROL	SYSTEM CONTROL	FLOPPY CONTROL	DESKTOP CONTROL	ACCESS-TIME CONTROL	APPLICATION CONTROL
After Dark 3.0	Berkeley Systems	$29.99	$29.99								
At Ease 3.0	Claris	$49.00	NA	●	●	●	●	●	●		●
cypherPAD 1.215	usrEZ Software	$49.00	$35.00	●							
DiskGuard 1.5	ASD Software	$129.00	$75.00	●	●	●*	●				
Empower 5.03	Magna	$129.00	$89.98	●							
Empower Professional 5.03	Magna	$219.00	$149.00	●			●	●			●
FileGuard 3.0	ASD Software	$249.00	$139.00	●	●			●	●	●	●
Folder Locker 1.3	Software Brewing	$30.00	NA		●	●*	●*				●*
FolderBolt Pro 1.03	Kent Marsh	$159.95	$85.00		●	●*	●*				●*
FoolProof Security 2.5	SmartStuff Software	$59.00	$39.00	●			●	●	●		●
Launch Pad Kid-Safe DESKTOP 1.0	Berkeley Systems	$29.99	$29.99	●	●	●	●	●	●		●
Mac Control 2.1	BDW Software	$59.00	NA	●	●		●	●	●		●
Mac Manager 3.0	ELS	$79.00	$59.98	●	●	●	●	●	●	●	●
NightWatch II 2.6	Kent Marsh	$129.95	$75.00	●				●		●	
Norton DiskLock for Macintosh 4.0	Symantec	$129.00	$89.00	●	●	●					●*
✓ ultraSECURE 3.541	usrEZ Software	$239.00	$165.00	●	●	●	●	●	●	●	●
ultraSHIELD 2.541	usrEZ Software	$149.00	$99.00	●	●	●	●	●			●
✓ UnderCover File Security 1.0	SmartStuff Software	$59.00	NA		●†	●†					●†

✓ MacUser BEST BUY *Access can be controlled if the item is placed in a locked folder. †Access can be controlled if the item is placed in a file box.

winds up in the wrong hands, you can have a security gap the size of the Grand Canyon.

You can minimize the security risks by requiring guests to log in with token disks. Using a token disk with NightWatch II is like using your ATM card at the bank — you need both the disk and your password in order to make it work. Even if conniving coworkers discover your password, they won't get anywhere without the disk. As with a key disk, it's important to keep token disks well hidden.

Security for the Rest of Us

You're not the CEO of a large company, you don't manage a bustling high-school computer lab, and you may not even have kids of your own. You're just an average user, with average needs. And yet you'd like at least enough privacy to keep your boyfriend from delving into the intimate details of your diary. You want something simple, something like the ability to lock one drawer of a file cabinet.

SmartStuff Software's UnderCover File Security lets you create a file box that appears as a separate desktop volume. You can keep anything in the file box — applications, documents, folders. You lock and unlock the box by using a password-protected DA. When you lock the file box, it's made invisible until you unlock it. Since UnderCover works below the Mac's filing system, programs such as Apple's ResEdit can't make the box contents visible again. You can also create a drop box that lets you put items into the file box without unlocking it. If you're paranoid about your boyfriend finding out where you *really* were last night, you can even encrypt file-box items.

FolderBolt Pro, from Kent Marsh, also provides simple single-user protection by allowing you to "bolt" folders and encrypt files. Although we liked FolderBolt Pro's simple design and smart features, we had more crashes and stability problems with FolderBolt Pro than with any of the other security products we tested.

More reliable but with far fewer features is Software Brewing's Folder Locker, which uses password protection to keep folders private. Folder Locker's manual is woefully skimpy, however. The documentation contains few descriptions of the program's security features beyond instructions on how to lock and unlock a folder.

The X-Files

It's a worst-case scenario. You're working on a top-secret project. The last thing you want is for Scully and Mulder to access your files.

For the ultimate in personal-computer security, try ultraSECURE, a feature-rich access-control and encryption package from usrEZ. ultraSECURE lets you restrict access to everything on your Mac — hard and floppy disks, files, folders, applications, DAs, the System Folder, and the desktop. The program offers over a dozen variations for assigning, varying, and otherwise managing passwords to lessen the dangers of password theft. But keep a tight grip on the included key disk, for those situations when a password is lost or forgotten.

ultraSECURE provides two official-looking warnings you can use to scare off would-be intruders. If the scare tactics fail to deter them, ultraSECURE can generate audio warnings and time-out pauses when incorrect passwords are attempted. You can change the message and the audio level of these warnings as well as the number of times they will go off before ultraSECURE freezes your keyboard and shuts down your computer. For complete security, ultraSECURE offers DES encryption as well as Triple DES encryption.

To ensure that deleted documents are truly trashed, ultraSECURE performs a secure erase when you empty the Trash. The program writes a pattern of 0s and 1s over the actual data instead of simply erasing the pointer to the data — the way the Mac OS normally

SCREEN LOCK	DROP BOX	KEY DISK	SECURE ERASE	ENCRYPTION	TOLL-FREE TECH SUPPORT	COMMENTS
●						A screen saver with easy-to-bypass password protection that locks your screen.
						Lets you choose among three interfaces based on the user's age and experience.
●		●				Effective password protection, but on-screen sign-on pad is annoying.
●						Password-protects floppy disks for security on the go.
●				●		Standard access-control features. Graphical interface.
●				●		Allows you to save personal configuration file you can use to restore privileges and passwords.
●	●		●	●		Three user levels allow for tight control of a wide array of security options.
	●					Offers a clever approach but a crude interface. Minimal documentation.
	●		●	●	●	Easy to use, with such handy features as password encryption, but lacks stability.
					●	With a secret key combination, you can bypass all security for one minute.
●		●				Kid-style interface comes with games.
●	●				●	The dense interface may intimidate home users.
●	●	●		●	●	Copland-style interface. Limits number of printouts, log-on time, and disk space per user.
●		●			●	Can restrict user access to specific times and days.
●				●		Drag-and-drop encryption/decryption makes security easy.
●	●	●	●	●		Feature-rich, with tamper protection.
●	●	●	●	●		Antivirus self-check wards off bugs.
	●			●	●	Creates hidden file boxes that can hold any kind of file. Has auto-encrypt option.

empties the Trash. (True security hounds will be pleased to know that they can select how many times the data is overwritten, for extra protection.) Files that aren't securely erased, even if they are encrypted, can be retrieved by utilities such as Norton Disk Doctor.

The Final Assignment

With such a wide selection of personal security software on the market, there's no reason to lose files — accidentally or otherwise. Berkeley Systems' Launch Pad Kid-Safe DESKTOP is perfect for families wanting to rope off a section of their Mac just for the kids. Simple to use and charming to look at, Launch Pad puts kids into their own worlds, complete with animations, sounds, and games to explore.

For individual users just looking for a little privacy, SmartStuff's UnderCover File Security provides simple but adequate security at a reasonable price. UnderCover doesn't kid around with PlaySkool interfaces or hassle you with high-tech security safeguards — it just provides a simple way to keep things private.

For multiuser situations, the choice is more difficult. Although we liked SmartStuff Software's FoolProof Security for its solid security and low price, we found other capable products too. If you're looking to control people flow as well as information access, you can set time limits on your Mac and restrict printing options with Mac Manager. Or, for those who need portable protection, ASD Software's DiskGuard can password-protect floppy disks.

However, if you're in charge of sensitive information and high-tech security is what you need in order to sleep comfortably at night, you'll want to check out usrEZ's ultraSECURE. Ideal for large companies with multiuser computers, ultraSECURE comes with every feature imaginable, including several levels of encryption and compatibility with a wide variety of disks and files.

Howard Bornstein is a free-lance author.

Directory / vendors of security software tested

ASD Software
Montclair, CA
909-624-2594
909-624-9574 (fax)
102404.3630@compuserve.com

BDW Software
St. Paul, MN
800-726-5462
612-686-5462
612-452-4902 (fax)
bdw@minn.net

Berkeley Systems
Berkeley, CA
510-540-5535
510-549-3978 (fax)
http://www.berksys.com

Claris
Santa Clara, CA
800-544-8554
408-727-8227
info@claris.com

ELS
Gainesville, FL
800-443-7971
352-375-0558
352-375-5679 (fax)
http://www.elsinc.com/~elstech

Kent Marsh
Houston, TX
800-325-3587
713-522-5625
713-522-8965 (fax)
wesolek@kentmarsh.com

Magna
Campbell, CA
800-806-2462
408-879-7900
408-879-7979 (fax)
magna@cup.portal.com

SmartStuff Software
Portland, OR
800-671-3999
503-231-4300
503-231-4334 (fax)
sales@smartstuff.com

Software Brewing
Mountain View, CA
415-940-1946
73647.3030@compuserve.com

Symantec
Cupertino, CA
800-441-7234
541-334-6054
541-334-7474 (fax)
ftp.symantec.com

usrEZ Software
Irvine, CA
800-482-4622
714-756-5140
714-756-8810 (fax)
usrEZ@netcom.com

QUICK LABS

HP's Printing Goliath • Two 2-GB Drives • A Quartet of 17-Inch Monitors

DEALING WITH QUICK LABS DATA isn't as simple as analyzing test results. There's a lot to consider, and one of the things to remember is that each product set isn't as homogeneous as it may sound. Often, *size* affects our evaluation — for instance, most of the time, we look at 730-MB, 2-GB, and 4-GB drives in the same month. The same goes for monitors and their screen sizes and printers and their footprints. Mix in a product's performance, features, vendor support, ease of use, reliability, and price, and what you have is a ton of information that needs to be put in perspective.

Uniformity can make life simpler, however. And for this month's Quick Labs, we got lucky — the two hard drives we reviewed are both 2-GB units, and all four monitors are of the 17-inch variety. So this month, you can look at a rating without considering size differences. Of course, if you want to compare the results for these products to those for products in past and future Quick Labs, you're back to square 1.

Hewlett-Packard's newest printer is the lone participant in this month's printer roundup. And talk about size: Put this thing in your office, and Trekkies might think that the Borg is now building printers for HP. Fortunately, its laser is set to print, not kill.

ONE NEW WORKGROUP PRINTER



From a high paper capacity to speed, speed, and more speed, the Hewlett-Packard LaserJet 5Si MX comes loaded with the bells and whistles necessary to satisfy everyone in the office. Its speedy engine will keep your coworkers from chomping at the bit while you print your 100-page report.

The $4,500 LaserJet 5Si MX takes the place of the LaserJet 4Si MX in HP's printer lineup and offers some improvements in features and performance. The 4Si MX's trays accepted only letter-sized paper, but the 5Si MX can handle a vast range of paper sizes, from envelopes to tabloid-sized pages.

Although its footprint is larger than that of its predecessor, the 5Si MX sports a sleeker design. In addition, it offers improved paper capacity, with three collapsible input trays — two 500-sheet trays that have automatic paper-size sensing and one 100-sheet multipurpose tray. The 5Si MX can also handle two additional paper-input devices.

The 5Si MX comes with Adobe PostScript Level 2; 35 resident PostScript fonts; and 12 MB of RAM, expandable to 76 MB via standard SIMMs. A JetDirect card for Ethernet and LocalTalk is included, and an optional 420-MB hard drive costs an additional $499. Like the 4Si MX, the 5Si MX has a user-friendly LCD and well-organized documentation to guide you through the setup. HP also includes its JetDirect Print Server software, which allows you to set the printer's zone location but lacks such features as queue management, status reporting, and the ability to change configurations from a remote location.

In our tests, the LaserJet 5Si MX produced clean, sharp text and fine line detail — what you'd want from a workgroup printer. However, we've seen better grayscale output from HP's consumer product, the LaserJet 5MP. The overall quality was adequate, and blacks were deep and rich, but photographic images were slightly fuzzy.

REVIEWER / REBECCA OLSON TESTING / JIM GALBRAITH

+ / OUTSTANDING ● / ACCEPTABLE − / POOR	ESTIMATED STREET PRICE	COLOR OR MONOCHROME	TECHNOLOGY	RESOLUTION	WARRANTY	TEXT QUALITY	GRAPHICS QUALITY	PAPER HANDLING	SUPPORT	COMMENTS	PAGES PER MINUTE (FASTER)
♦♦♦♦ **HP** LaserJet 5Si MX	$4,500	monochrome	laser	600 dpi	1 year	+	●	+	+	Very close to being a complete workgroup-printer package.	0 6 12



TWO NEW HARD DRIVES

If you're looking for reliable, cost-effective bulk storage, either of this month's drives — the Apple 2GB External (pictured) or the FWB Hammer•PE 2000FMF — will do just fine. The Apple drive is manufactured under license by La Cie, and the disk comes preformatted by Apple's reliable but unsophisticated Drive Tools formatter. It also comes with La Cie's more advanced Silverlining formatter, which you can use to partition the disk, set up password protection, and tweak a variety of SCSI settings. FWB's drive has a slight ease-of-use edge, since the company's Hard Disk ToolKit PE formatter gives you the same advanced features as Silverlining without making you reformat your brand-new disk.

If cost is an overriding issue, the Apple drive, with its slightly lower price, is the better option. For those who are concerned about zippiness, the FWB drive has the edge. Both drives offer a good balance of value and speed, however.

Beyond price/performance, case design sets these drives apart, and the FWB drive comes out ahead: Its case is easily totable, and although it lacks extras such as switchable termination, it has clearly visible activity-indicator lights and a readily accessible SCSI-ID selector. The Apple drive's vertical orientation makes it look like a miniature Mac tower, but the nifty looks come at the cost of practicality. The Apple drive's SCSI-ID selector is hidden behind a plastic front panel, and it lacks activity indicators.

All MacBench 3.0 Disk Mix scores are relative to that of a 1-GB Quantum internal drive in a Power Mac 7500/100, which has a score of 10.0.

REVIEWER / JIM SHATZ-AKIN TESTING / KRISTINA DE NIKE

+ / OUTSTANDING ● / ACCEPTABLE − / POOR	ESTIMATED STREET PRICE	WIDE SCSI	FORMATTED CAPACITY	PRICE PER MEGABYTE	WARRANTY	CASE	SOFTWARE/ MANUALS	SUPPORT	COMMENTS
$\$\$\$\$$ **FWB** Hammer•PE 2000FMF	$1,000	no	2.0 GB	$.50	2 years	●	+	●	Speedy and small enough for easy portability.
$\$\$\$\frac{1}{2}$ **Apple** 2GB External	$900	no	1.9 GB	$.47	1 year	−	●	●	Attractive-but-impractical case hides key controls.





FOUR NEW MONITORS

This month's quartet of 17-inch models all scored well above the "acceptable" level in our image-quality tests. But the similarities end just about there. The batch runs the gamut from a supersharp (and expensive) desktop-publishing monitor, the Sony Multiscan 17se (pictured), to the workmanlike Apple Multiple Scan 1705, which offers basic features at an affordable price. In the middle sit the Mitsubishi Diamond Scan 17HX, the only monitor this month that offers on-screen menu controls, and the Mag InnoVision DX17T, a well-rounded monitor with a balance of features, image quality, and affordability.

The Sony Multiscan 17se has an impressive array of color-control settings, so graphics pros can tweak screen colors to match output. You'll need some patience (and the manual) for this, however, because the front-panel controls are arcane.

The Apple Multiple Scan 1705 offers minimal color controls but covers all the bases for most home and office users. It can display data at a 1,280-x-1,024-pixel resolution, handy for viewing large images and spreadsheets.

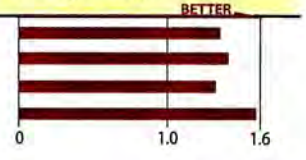
The Mitsubishi Diamond Scan 17HX's on-screen controls make it this month's ease-of-use champ. Calling up the on-screen menus is simple, using front-panel buttons.

The Mag InnoVision DX17T strikes perhaps the best combination of low price, versatile front-panel controls, and good image quality. Its only negative is the usable screen size: The active screen is half an inch to an inch smaller (measured diagonally) than those of the other monitors this month.

The image-quality scores reflect the results of our tests for image sharpness, focus, brightness, uniformity, pincushioning, color range, color accuracy, and vibrancy. A score of 1.0 is considered acceptable.

REVIEWER / JIM SHATZ-AKIN TESTING / MARTIN WONG

+ / OUTSTANDING ● / ACCEPTABLE − / POOR	ESTIMATED STREET PRICE	SCREEN SIZE	MAXIMUM RESOLUTION	WARRANTY	MANUALS	SUPPORT	CONTROLS	COMMENTS
$\$\$\$\$$ **Apple** Multiple Scan 1705	$819	17 in.	1,280 x 1,024 pixels	1 year	●	●	●	Fine for general-purpose use at home or office.
$\$\$\$\$$ **Mag InnoVision** DX17T	$840	17 in.	1,280 x 1,024 pixels	2 years	●	●	●	Good balance of image quality and price.
$\$\$\$\$$ **Mitsubishi** Diamond Scan 17HX	$950	17 in.	1,280 x 1,024 pixels	3 years	●	+	+	Handy on-screen controls take a little getting used to.
$\$\$\$\$$ **Sony** Multiscan 17se	$1,350	17 in.	1,280 x 1,024 pixels	2 years	●	●	●	Advanced color controls great for DTP, but confusing.



LISTING IS ALPHABETICAL WITHIN GROUPS OF EQUAL MOUSE RATINGS.

GET INFO / Apple Computer 503-520-9000 (hard drives), 408-996-1010 (monitors) **FWB** 415-325-4392 **Hewlett-Packard** 415-857-1501 **Mag InnoVision** 714-751-2008 **Mitsubishi Electronics America** 714-220-2500 **Sony Electronics** 408-432-0190

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MacWEEK (Aug. 7, 1995)

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Netscape Navigator's extensions to HTML make the Web a prettier place for surfers but a potential nightmare for Web authors.



By Tonya Engst

The Ant and the Grasshopper

DESKTOP PUBLISHERS HAVE IT EASY. They can look at a final draft and see a close approximation of the printed version. But imagine a scenario in which some people reading a publication can see a watermark, others can't, and still others find that the watermark completely obscures the text. That scenario represents only one of the display problems Web designers contend with every day.

When you publish a Web page, you usually put a document written in HTML (Hypertext Markup Language) on a Web server, which in turn serves the page to different Web-client applications, also known as clients or browsers. Each client interprets HTML as it sees fit. A page that has been written to take advantage of the hottest features available in Netscape Communications' Navigator 2.0 can look mighty odd when it's displayed by other clients.

Unlike a standardized language such as PostScript, the rules of which are controlled by Adobe, the tags that make up HTML are always under debate and constantly changing. As a result, Web authors must choose whether to exploit Navigator's enhanced features — at the expense of the people using other clients — or create less exciting pages that may pale in comparison to their Netscape-savvy counterparts.

Standard Bearers

The closest thing we have to a Pope of HTML is the Internet Engineering Task Force (IETF), the organization that debates and defines new HTML standards. New HTML tags are first defined in Internet Drafts and Request for Comment documents. They then progress from being a proposed standard to a draft standard to a standard. But it's a long process — HTML 2.0, the flavor of HTML most clients have supported for well over a year, is only at the "proposed standard" stage. And popular HTML 3.0 features such as tables are still nothing but a collection of Internet Drafts.

If we waited for the IETF to ratify HTML standards before using them, we'd all still be using Gopher. But while the standards debate rages, authors need to choose which HTML tags they'll support and which they'll avoid.

Ants and Grasshoppers

Conservative authors — call them ants — use only HTML 2.0 tags. Ants want their pages to work reliably with all clients and don't want to be forced to rewrite their pages when the HTML standard is finalized. On the other end of the spectrum are grasshoppers, who love to use today's latest and greatest extensions to HTML and don't care how their pages look with clients other than Navigator. Grasshoppers often defend their actions by saying that they are Web-publishing pioneers creating visually rich pages.

Ants' sites can seem dull and behind the times, and grasshoppers' sites can turn off the segment of the audience whose clients can't handle the special extensions. But if you're really clever, you can be an ant and a grasshopper at the same time.

One of the great things about Web clients is that they tend to ignore what they don't understand. In Navigator, text within a pair of `<big>` tags appears in a large point size. But if an HTML 2.0 client such as TradeWave's MacWeb 1.1 encounters the tag `<big>`, it pretends the tag simply doesn't exist. The drawback is that if your use of tags such as `<big>` is vital to the presentation of your document, a lot will be lost on readers whose clients aren't `<big>`-savvy.

Unfortunately, some extensions to HTML are so radical that they can prevent pages that

A. Netscape Navigator



B. AOL browser (before)



figure 1 / Table manners: *MacUser*'s Web site uses an HTML table to display information on the Ratings page, but the information must be readable by browsers that don't support tables. Although the original table looked fine in Netscape Navigator (A), it was unreadable in both the America Online browser (B) and MacWeb (C). We then modified the file by adding the
 (line break) tag to the end of every table row and

use them from being usable in other Web clients. For example, a page that includes Navigator 2.0's extensions for frames (scrolling windows within a Web page) will appear as an empty page in any client other than Navigator if the author has failed to use Navigator's <noframes> tag.

Perhaps the biggest offenders in this area are HTML tables. Although they're supported by Navigator and some other clients, the results often differ. Tables can turn into a disastrous jumble in clients that don't support them and can have minor difficulties even in clients that do (see figure 1).

If you must present tabular data, consider using a <pre> tag pair, which makes text display in a monospaced font with all spaces and line breaks intact. When you create tables, use a monospaced font, such as Monaco. That way, you can line everything up correctly.

Another trick when using tables is to put spaces at the end of each cell and a line break (courtesy of the
 tag) at the end of each row. Although clients that understand tables know that the </tr> tag means the end of a table row, other clients won't see the end of a line until there's a <p> or tag. Turning your </tr> tags into
</tr> pairs and inserting a space before your <td> tags can make a table more readable (see figure 1).

A background color may seem innocent enough, but it can create unforeseen problems. To create a background color, put a bgcolor attribute into the <body> tag of an HTML document. You might then add a text attribute to set the text color, so that your text will be legible. But some clients can't interpret these tags, and most others give users the option of turning custom colors off.

The big danger in using background colors is that they encourage the creation of graphics that look ugly without the background. For instance, because white works well as a background color for reading text online, I usually surf the Web with colors off. One site I frequent features a navigation bar colored yellow with brown edges. The bar looks awful with custom colors turned off, but when viewed with them on, the navigation bar looks wonderful against the page's gorgeous blue background.

Another danger in using background colors is that some early versions of Web clients support font colors or background colors but not both. As a result, a page with yellow text on a black background can become unreadable, appearing as either black-on-black or yellow-on-gray.

WYSI Not WYG

Another problem you may run into involves Navigator's interpretation of the
 tag. If a document contains several
 tags in a row, Navigator will interpret them as multiple line breaks. However, other clients interpret multiple
 tags as being the same as a single
 tag — one line break.

Adobe PageMill 1.0 provides so-called WYSIWYG Web-page authoring, but it emulates Navigator's implementation of the
 tag. As a result, an author can create lots of horizontal white space in PageMill documents, but that space evaporates in clients other than Navigator.

Similarly, PageMill uses the tag to center text, whereas the Web is moving toward use of an align attribute to assign alignment, as in <p align=center>. Some clients support , some support align=center, and some support both but in different ways. If you must center text, you can use either method. However, you should be aware that the tag may disappear as time goes on, forcing you to rework your pages. Ants, being ants, don't center anything.

Special characters cause no end of problems in HTML. To use a character other than those you can create on a Macintosh without using the Option key, you usually must use an *entity*, a special code that represents the character. But the HTML specifications available don't offer entities for many characters, such as the copyright symbol (©) or curly

C. MacWeb (before)



D. MacWeb (after)



one space character after every cell entry. As a result, the browsers that couldn't understand table-related tags were able to display the table in a readable form (D). The table's columns weren't lined up evenly, as in Navigator, but all line breaks were reinstated. And since Navigator can use the table tags to interpret the page, the addition of `<br>` tags and space characters didn't change how the page looked in that browser.

quotes (" "). I've yet to find a client that understood a code for a curly quote, but many clients do understand Netscape's HTML extensions for characters such as the copyright symbol (`©`) and the registered-trademark symbol (`®`).

HTML 2.0 doesn't handle graphics particularly well — there's no facility for wrapping text around graphics. HTML 2.0 does let you insert `align=top`, `align=middle`, and `align=bottom` into the `<img>` tag, which determines where an in-line image will appear in relation to the text on that line. Grasshoppers can also use nonstandard tags such as `align=left` and `align=right` to place an image to the left or right of a line, with text wrapping around the image. Clients that don't support those tags are able to display the image as part of a line of text.

You can use the `border` attribute to make or eliminate a border around an image, but most clients don't support that attribute. If you need a border, create it in an image-editing program.

Test, Test, and Test Again

Those of us who are neither ant nor grasshopper should test all our Web pages with several different clients. At the very least, test your pages on a Mac running Navigator and with another client, such as MacWeb 1.1. If you have the wherewithal, also check out your documents in the text-only Lynx program (available on most UNIX systems) and on a Windows machine. Testing will help you see what tags work with which clients and help you catch errors. Some clients are more tolerant of typos than others. Navigator 1.2 is perhaps the most tolerant client around; Navigator 2.0 is less tolerant.

If your Web site is Mac-based and you really want to use the latest and greatest tags available without having your pages look bad in other clients, check out Maxum Development's NetCloak, a $195 Web-server add-on. NetCloak gives you the ability to tailor your page's HTML based on the type of client your reader is using. For example, you can create an HTML table that's sent to Navigator users and a matching table formatted with the `<pre>` tag that's sent to other clients.

Will the Ants Prevail?

The Web is moving so quickly that it's hard to predict what the long-term future — let alone the coming year — will bring. It's entirely possible that the ants are fighting a losing battle and that "real HTML" will be defined only by what is viewable in Netscape Navigator, Microsoft's Internet Explorer, or both. But it may be that both sides will win this war. The plethora of multimedia plug-ins becoming available for Navigator 2.0 will make it much easier for Web designers to add bells and whistles to their pages without having to invent a slew of new (and unsupported) HTML tags. It may be that the grasshoppers will move on to Macromedia's Shockwave, Sun's Java, and Adobe's PDF and let HTML return to its roots as a structured text format.

Play It Smart

Someone will probably write a book about HTML extended tags and the problems they can cause in clients that don't understand them. But the basic idea is this: If you use tags that fall outside what passes for the HTML "standard," think twice about the effect those tags will have in clients other than Netscape Navigator. Although Navigator currently holds an estimated 70 percent of the Web-client market, 30 percent represents too large a group of people to exclude from the content you're publishing. So if you want to be a grasshopper, try to make the ants believe you're still one of their own.

Tonya Engst allies herself with the ants but occasionally works a `<center>` tag into her Web pages. Tonya edits the online publication TidBITS and is the coauthor of Create Your Own Home Page. *A version of this article on the* MacUser *Web site (http://www.zdnet.com/~macuser) features links to topics mentioned in this article.*

Colorized Video Unmasked

Use Adobe After Effects to create eye-catching colorized video effects.

BEFORE THE DAWN of digital-video editing, creating simple special effects such as highlighting an object required good camera and lighting work during filming as well as tedious film processing. Now effects can be created in the digital realm, without the time and expense that film processing required.

Using software such as Adobe Premiere and After Effects or Strata MediaPaint, you can create an elegant digital-video effect that masks one object so that it remains in full color against black-and-white footage. Once you mask out the object, you can transform it in a variety of ways, including duplicating it or keying it over another background.

The color-on-black-and-white effect appears in a lot of commercials and music videos. It was also used by Francis Ford Coppola in *Rumble Fish*, a black-and-white film that had a tank of Siamese fighting fish highlighted in color for emphasis.

Creating this kind of effect on the Mac is a snap and can be accomplished by use of any of the software mentioned above. In this case, Reg Harris, of Seattle's Omniscient Productions, used Adobe After Effects on QuickTime footage of his dog, Jean-Luc, playing with a Frisbee.

Kennedy Grey is a contributing editor for AV Video *magazine and is the director of digital media at Fast Forward Productions in Seattle, an organization dedicated to empowering at-risk youth by training them to use new media-production tools. You can reach him at Motive8@aol.com.*



1. SETTING UP THE COMPOSITION



STEP BY STEP

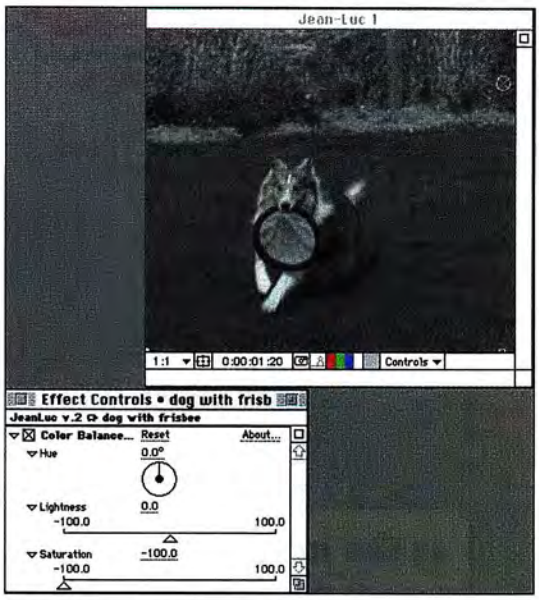
1. SETTING UP THE COMPOSITION. Open After Effects, and create a new composition (Composition: New Composition). Set your desired composition size — in this case 640 x 480 pixels — and duration. Import the footage you'll use for the effect into the Project window (Import: Footage File).

Drag your footage from the Project window into the Composition window. The first frame of the clip will appear, and a layer for the clip will be added in the Time Layout window.

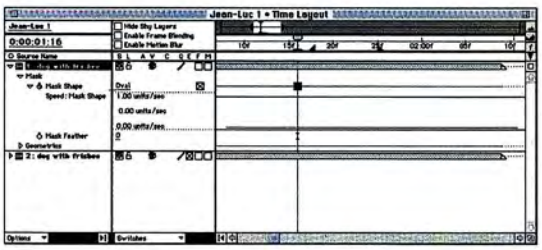
2. MAKING THE BLACK-AND-WHITE LAYER. Desaturate the layer, by adding Color Balance HLS effects (Effects: Image Controls: Color Balance HLS). In the Effect Controls window, slide the Saturation indicator to –100.0. In the Composition window, the clip will desaturate, showing only the grayscale information.

3. MAKING THE MASK LAYER. Again, drag your footage from the Project window to the Composition window. A second layer will be placed directly over the first and will block the grayscale footage completely. This layer will be masked so that only the color Frisbee shows.

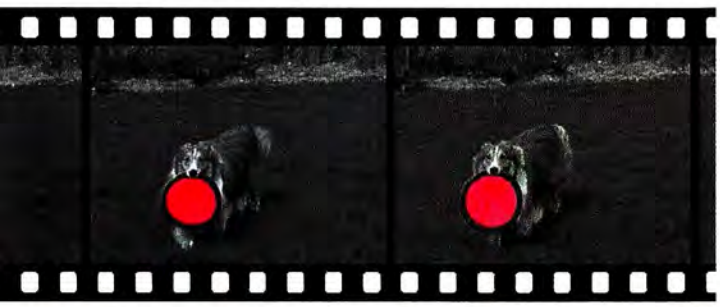
To mask a moving image, you must create a mask shape. Each frame must have a properly positioned shape to create a convincing effect. Click on the small triangle next to the film-footage name to reveal the Mask

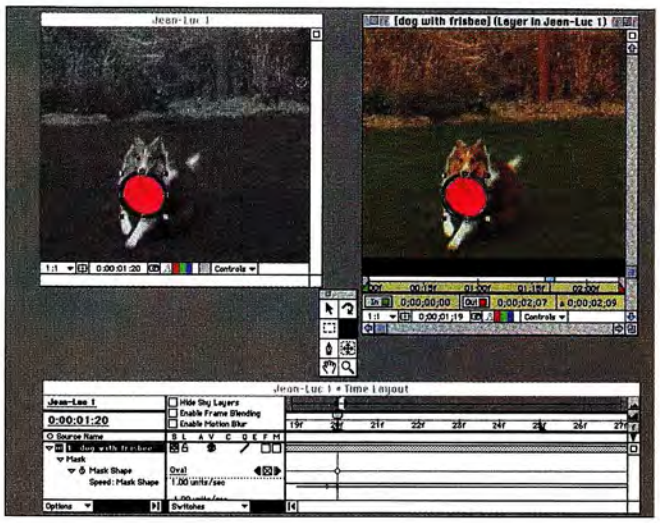


2. MAKING THE BLACK-AND-WHITE LAYER

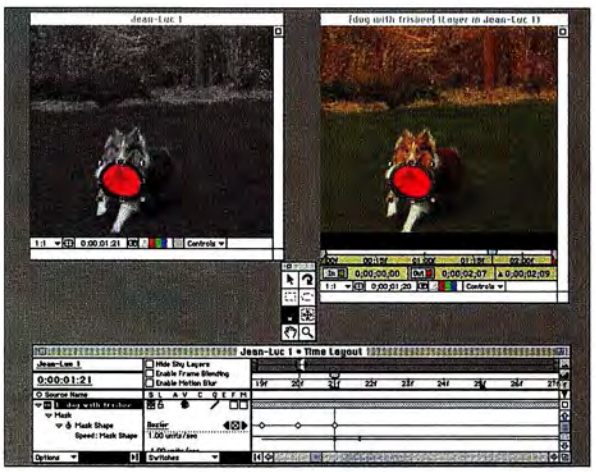


3. MAKING THE MASK LAYER





4. CREATING A CIRCULAR MASK



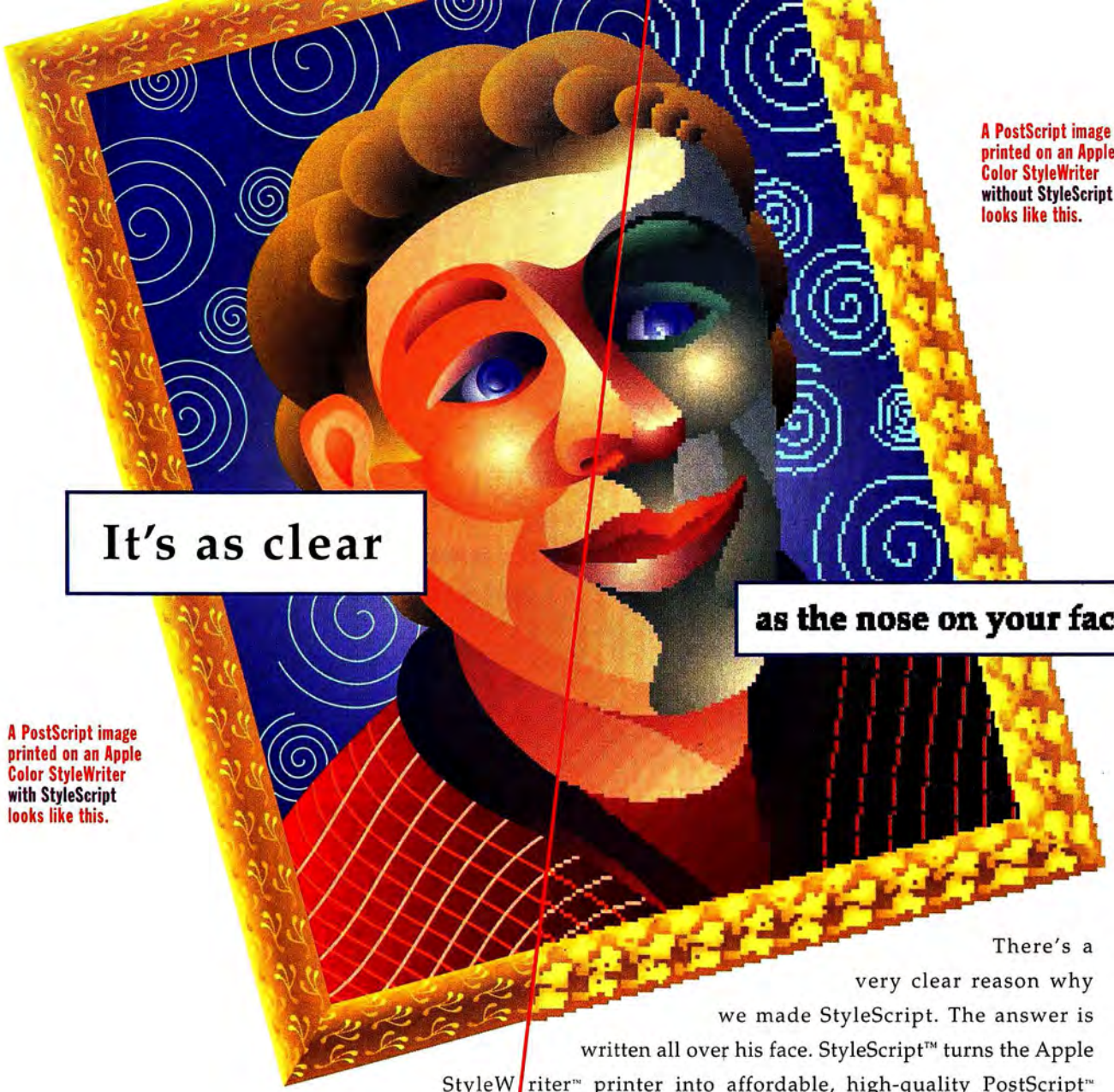
5. CREATING A BÉZIER MASK

controls. Reveal the Mask Shape controls in the same way. Click on the small clock icon next to the Mask Shape track to enable variable keyframes. Turning on variable keyframes tells After Effects to create a keyframe and automatically add keyframes as the mask shape is changed over time.

4. CREATING A CIRCULAR MASK. Double-click on the top layer — the colored image — to open the Layer Editing window. Select the circular-mask tool from the tool palette, and drag out a circle. This creates a circular mask area that, in our example, shows only the pink center of the Frisbee.

5. CREATING A BÉZIER MASK. Advance to the next frame, and adjust the mask position and shape. A mask created with the circular-mask tool doesn't work well for the shape of the Frisbee as the dog is moving. The Bézier tool is a better choice for the irregular shape of the disk as it moves. It allows the creation of a customized mask shape that can then be manipulated with Bézier curves just like the ones you create with the pen tool in Adobe Photoshop.

Repeat the process on each frame until the entire top layer is properly masked. Finally, render a QuickTime movie (Composition: Make Movie) to view the result.



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It's as clear

as the nose on your face.

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EXPERT TIPS / By Bob Schaffel and Chuck Weger

Around the Publishing Carousel

Learning how to repurpose your documents for other media requires some juggling.

LATELY, WE'VE BEEN GETTING a lot of questions about Acrobat. No, not the circus performer (although some days DTP technology makes you want to take up lion taming), but the software from Adobe that's given away with every new Mac. (OK, only one piece of it, Acrobat Reader, is given away.) In this month's column, we explain what pieces currently comprise Acrobat, where the technology seems to be headed, and why you ought to pay attention to it.

Here's the current problem: How do your colleagues access your electronic pages when they possess neither your software, nor your fonts, nor perhaps even the same type of computer? You can save the text as ASCII, but that sacrifices the visual richness of formatting. The answer: Create a data structure that can describe page elements, display them rapidly on a monitor, contain just enough information about fonts for display and printing, and move from one computer platform to another without translation. Sounds like PostScript, doesn't it? It's actually Portable Document Format (PDF), the heart of Adobe Acrobat and the form in which Acrobat files are saved.

Acrobat software comes in a "regular" and a "pro" version. Each contains several components: software for creating PDF files, software for reading Acrobat files (Acrobat Reader), and software for enhancing Acrobat documents. The enhancing software, Acrobat Exchange, lets you add bookmarks, links, thumbnails, and a plethora of other extras — from sticky notes to imported QuickTime movies — to your Acrobat files. Acrobat also installs a version of Adobe Type Manager (ATM) and two Adobe Multiple Master fonts required for font substitution and encoding.

In the regular version, Acrobat creates a PDF file by using a driver called PDFWriter. You select this system extension in the Chooser and access it through a document's Print dialog box. Instead of generating printing instructions, PDFWriter creates an Acrobat file in a location of your choice on your hard disk.

PDFWriter has limitations. It can't produce a PDF file when a page includes EPS graphics, nor does it permit you to down-sample your scans. If your documents contain EPS, you need Acrobat Pro, which includes Acrobat Distiller. Distiller is a PostScript Level 2 interpreter that can produce a PDF file from almost any PostScript file or EPS graphic.

PDF files, whether or not they've been enhanced with Exchange, can be read by anyone who has installed Acrobat Reader, which is currently available for the Mac, as well as for Windows, DOS, and UNIX machines. That takes care of that pesky platform problem.

There's another problem, though: How to create a single document that can be multimedia, interactive, online, print, or all of the above. That's when things really do seem like a three-ring circus, what with all the zigzags needed as we switch back and forth between applications. As workflow management continues to evolve (see "Data, Data Everywhere," February '96, page 109), we'd like to have a publishing hub from which all these different types of documents can be created. If Adobe succeeds in implementing a few important technological improvements for high-end publishing (integrating the Open Prepress Interface and the ability to handle CMYK images, for example), Acrobat will have the potential to solve this important issue for multiple media. Meanwhile, here are a few tips to help you make Acrobat more productive.

Use the image-manipulation capabilities of Acrobat Distiller to your advantage when creating a PDF file. For instance, if your document is to be displayed on a monitor, down-sample your scans to 144 dpi — no more. However, if your target is the Internet, data compression is more important. In this case, turn on JPEG compression (the medium setting is fine) to significantly reduce the final file size.

You can use Acrobat as a preflight tool: Print your pages to a PostScript file, distill them into PDF, and then use Reader to check that all the page elements are where they should be prior to committing the page to output.

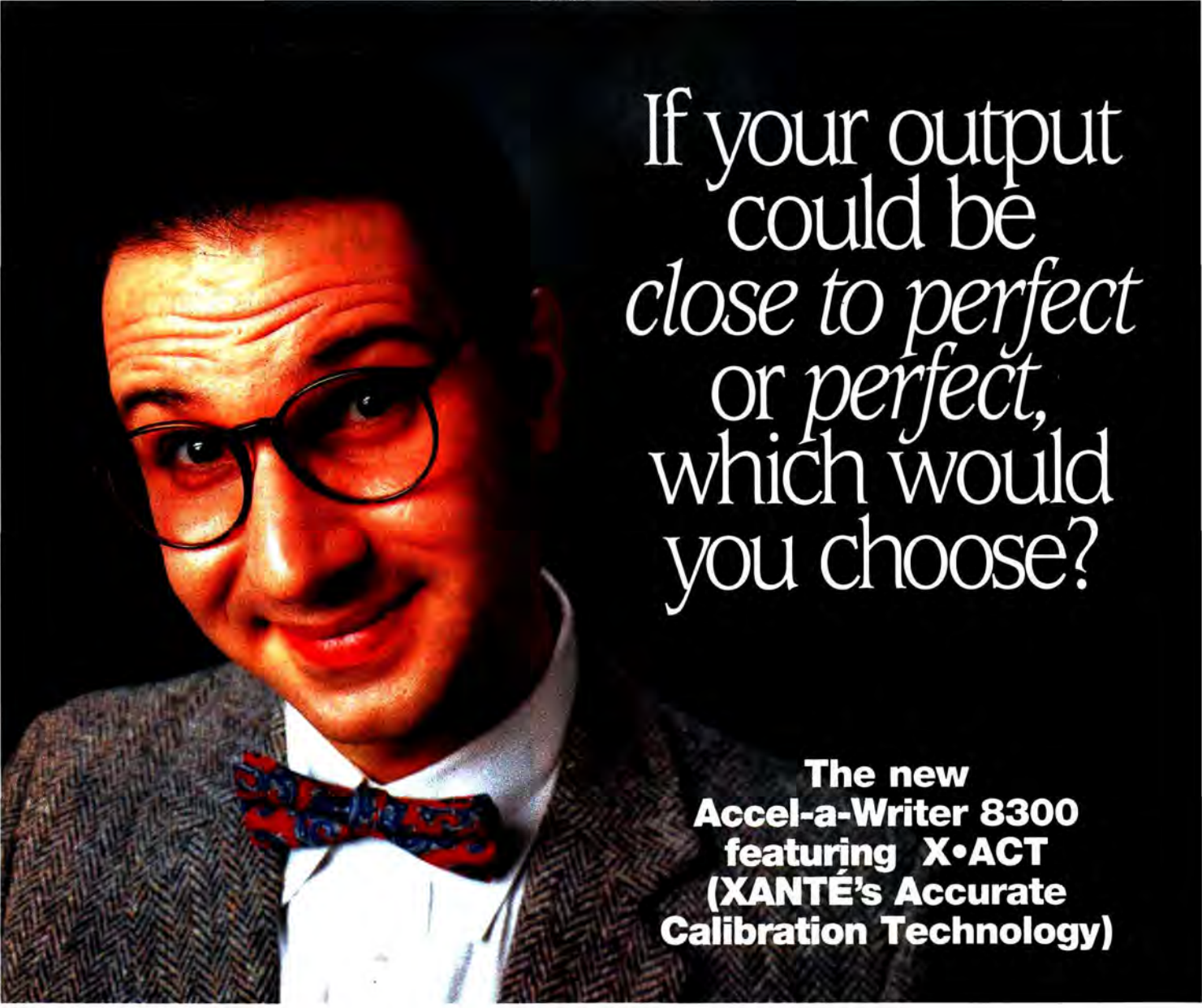
Better yet, if you have a PostScript file that won't print because it's too complicated, distill it into PDF before printing. If the file contains scans, turn down-sampling and compression off to avoid spoiling the high-resolution data. Watch out, too, for unwanted font substitution: Embed your fonts in the PDF file and What You Print Will Be What You Expect (WYPWBWYE).



There are other components that enhance the technology's functionality (Acrobat Catalog, Acrobat Capture, third-party plug-ins). But once Adobe enhances PDF to address high-end publishing issues, we think Acrobat will be poised to take the spotlight in the center ring.

Bob Schaffel is emerging-technologies consultant for R. R. Donnelley & Sons. Chuck Weger is a consultant and the conference chair for CONCEPPTS 96.

ILLUSTRATION / STU SUCHIT



If your output could be *close to perfect* or *perfect*, which would you choose?

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CIRCLE **126** ON READER SERVICE CARD

Font Fiddling

AMASSING A FONT LIBRARY is one of the pleasures of digital design, but keeping track of it isn't. Font management is still a problem for many publishers (see "Font Fatigue," January '96, page 111), but the right utilities can help. Here are a couple of new ones:

TypeIndexer. If you're like me, you may have hundreds of fonts in various places on your hard disk — some installed in the System Folder, some stashed in project folders. It's hard to remember which font is where. TypeIndexer, from Linographics, can catalog all the fonts on your Mac — even if they're not installed. It generates a simple list — handy for noting duplicates — that you can import into a spreadsheet for further sorting and searching. It also allows you to create type-specimen sheets that show complete character sets, keyboard layouts, and text settings with canned or custom text. TypeIndexer is able to generate as many as 60 layouts per page. It works exclusively with PostScript fonts, but it does include an error handler that flags fonts that may be corrupted. You have to be connected to a PostScript printer, however. $50. 800-854-0273 or 714-639-0511.

theFONDler. Created by Jim Lewis, the developer of the theTypeBook cataloging utility, Rascal Software's theFONDler has been described as a Norton Utilities for fonts. It organizes, analyzes, and troubleshoots fonts, whether they're loaded into your system or not. For example, theFONDler can scan fonts on a removable cartridge, locate duplicates, and group screen and outline fonts (eliminating extraneous folders along the way) as well as identify new font IDs that conflict with those of installed fonts, assign unique ID numbers, and preview new fonts on-screen before you install them. It also detects corrupted font files and flags those that are most likely to cause problems in the future. theFONDler works with PostScript and TrueType fonts. $70. 805-255-6823.



Adobe Type Manager 3.9. This upgrade to the truly indispensable utility for working with PostScript fonts isn't for everybody. Adobe Type Manager 3.9's new features are specially designed to work with the new Adobe fonts Jenson and Jenson Expert. These multiple-master fonts contain an intermediate master design on the size axis, which gives you greater latitude and control in creating fonts that look good at any size. Font Creator — the utility that is used to create custom fonts from multiple-master typefaces — is built into ATM 3.9. The new version has a list price of $60. It also ships with Jenson ($145) and is going to be rolled into new Adobe product releases. 415-961-4400. / Pamela Pfiffner

FINE PRINT

Multimedia by Design

Designing for print is one thing, but learning to design for interactive media demands a fresh perspective. Two recent books can help you make that transition. ✪ ***Interactivity by Design,*** by Ray Kristof and Amy Satran, explores the thought processes behind designing for interactive media such as the World Wide Web and CD-ROMs. You'll learn how to plan a project, organize components, navigate structure, and add time-based elements such as sound and video. The book's own design and structure employ many of the same techniques. $40. Adobe Press. 800-428-5331 or 415-961-4400. ✪ For a more hands-on look at creating interactive material, check out ***Designing Multimedia,*** by Lisa Lopuck. This book explains the tools and techniques required to produce multimedia content, such as creating color palettes, working in layers, and managing multiple file formats. It additionally showcases successful projects and their designers and provides tips for getting started in multimedia design. $35. Peachpit Press. 510-548-4393. / PP







Face-off

WITH THE INTRODUCTION of its Creative Alliance last year, **Agfa** launched an ambitious campaign to commission new fonts. There's currently a score of Creative Alliance Exclusives typefaces, including Matthew Carter's Alisal family, Olivier Nineuil's Comedia Medium, and Panache Typography's Revolution Normal. $49 each. 800-424-8973.

The Font Bureau continues to pump out new fonts at a prodigious pace, including an extended Agency family. Agency is popping up all over the Internet as a fave font for home pages, according to The Font Bureau. Another recent release is Jean Evans' Dizzy, inspired by the handwriting of jazz great Dizzy Gillespie. Available from Font Haus, 800-942-9110; FontShop, 800-363-6687; Phil's Fonts, 800-424-2977.

Image Club Graphics may be owned by Adobe now, but the company continues to produce its own line of original display faces, such as Burweed and the Farrier family, as well as wonderfully witty dingbats such as those in Mini Pics' Naked City. $29 to $40. 800-661-9410. / PP

Presenting The Next Upgrade To Microsoft Word

Introducing Nisus® Writer 4.1, the upgrade to Word that's truly an upgrade. Because unlike the latest version of Word, Nisus Writer 4.1 gives you all the features and power you need *without* gobbling up a lot of RAM or disk space.

What Nisus Writer squeezes out of a little bit of memory is nothing short of remarkable. For starters, you get all the text, formatting, document and graphics features you'd expect from the most powerful word processors. But with Nisus Writer 4.1, that's just the beginning.

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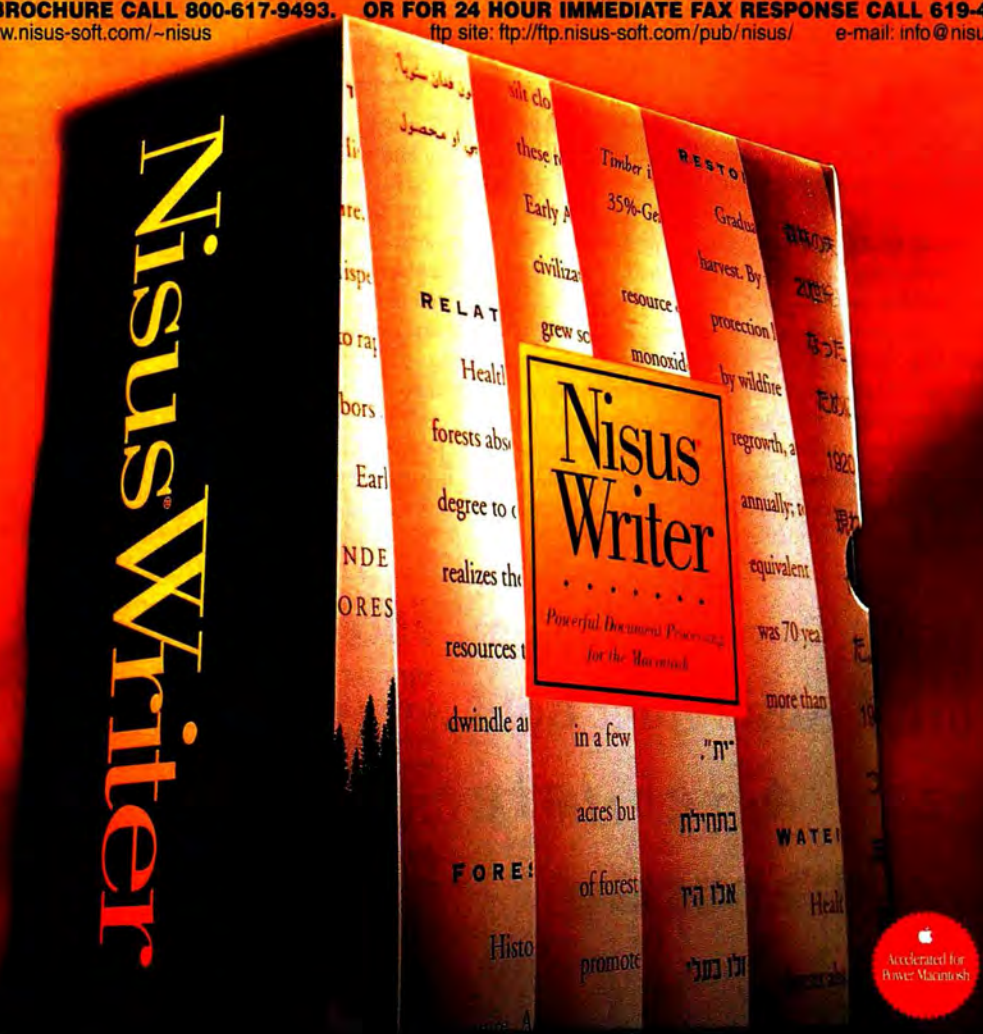
Then there's Nisus Writer's exclusive, full-featured macro language for automating complex tasks, including new HTML tools for the Internet.

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Suck's Appeal, Seductive Cynicism

MAGAZINES CAN EXPLOIT the World Wide Web, providing material that expands on traditional printed information. Suck, a new daily commentary and review site, breaks the mold of print publications, with a thoughtful design and wry criticism of on- and off-line media.

The content of Suck changes daily. The main piece runs in one long scrolling column. Noteworthy is the site's immediacy. When you enter Suck, you see the title and simple graphics; there is no introduction page or other extraneous material to get in the way of the content. Hyperlinks peppered throughout the text take you to the sites being criticized and to related material. Suck is run by the self-styled Society of Sucksters, which includes Carl Steadman, Joey Anuff, Heather Havrilesky, and other contributors.

No Web site would be complete without graphics. Suck uses Adobe Photoshop to create or process many of its visuals and outputs them for the Web by using BoxTop Software's PhotoGIF plug-in. Moving the graphics to a non-Mac server is a snap with the Fetch FTP client. Suck's server is Windows NT-based, mainly to handle the browser-aware scripts.

Some of the material is suitable only for audiences aged 17 and older. The raw language shows why the Internet as a publishing medium for the masses will evolve from the fringe to the center and not the other way around. / Sean J. Safreed

WHAT:

Suck, "the last word on the net."

COMPANY:

Suck, http://www.suck.com (a wholly owned publication of Hotwired).

TOOLS:

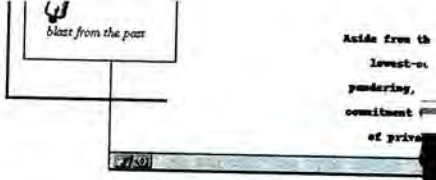
Http server, Apache (running on a Pentium-based Windows NT server); Adobe Photoshop; BoxTop Software's PhotoGIF; Bare Bones Software's BBEdit; Qualcomm's Eudora; Jim Matthews' Fetch.



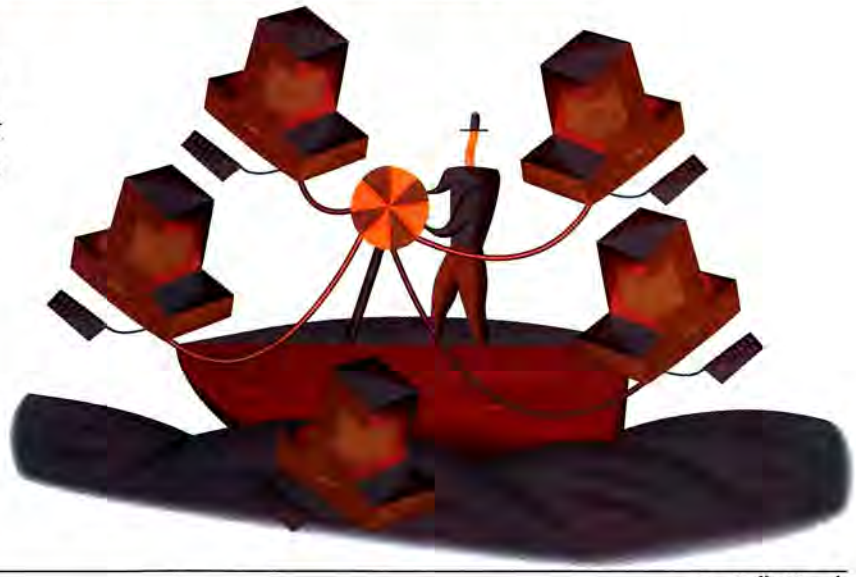


High-speed Internet access for your whole office

is finally a no-brainer.



1. NAVIGATION. Graphics along the left-hand side of the text column are links to other material in the site. Clicking on the fish takes you to the virtual masthead for Suck. Past issues of Suck can be found under the barrel icon, and you can get a random issue of Suck through the smoking gun.



Upgrade your LocalTalk network to a faster, more PC-friendly Ethernet network in five easy steps.

By Kelli Wiseth

Easier Ethernet

IT'S FREE WITH EVERY MAC, but LocalTalk has one huge problem: It's s-l-o-w. It also doesn't allow for easy connectivity with PCs. Fortunately, the cost of moving up to Ethernet has never been lower, meaning that it's easy for cost-conscious folks and those with an investment in older Macs to make the big move. Switching to Ethernet can pay for itself very quickly, in both speed and productivity — and it's not hard to do. Here's your step-by-step guide to bringing Ethernet to your office.

1. Know What You Need

Before you do anything else, decide what you want from your Ethernet network. How many machines would you like to connect? Do you simply want to swap files easily among a few Macs or between Macs and PCs? Do you want a central repository for Mac as well as Windows files? What about e-mail, scheduling, and other services? Do Mac and PC users need to participate? Would you like Mac and PC users to share a printer? Knowing the answers to these questions makes your hardware and software choices easier and helps you determine which upgrades will actually improve your productivity.

2. Know What You Have

When it comes to Ethernet, not all Macs are created equal. Some Macs require Ethernet cards — sometimes called NICs (network interface cards) — some need a simple transceiver, and a few newer machines have built-in Ethernet support. The same variables apply to PCs and printers. Like many other things Macintosh, Ethernet options have changed a lot over time (see the table). If you need to connect PCs to the network, check for built-in Ethernet adapters or slots that can hold them. Many current PCs include an Ethernet NIC.

Next, gaze at the back of your laser printer. Does it have an Ethernet port? If not, find out from the manufacturer whether you can add an Ethernet card. If the printer doesn't support Ethernet, you'll need an external adapter.

Once you've got a handle on the computers and printers, take a look at your wiring. Many modern office buildings are wired for 10BASE-T Ethernet (the most popular and simplest of the three Ethernet types), which uses unshielded twisted-pair (UTP) wiring to connect individual machines to the network. If your building is already wired, you may only need to buy cables to connect each computer to a wall jack. If not, you will need to purchase and install all the cable you need or hire a wiring contractor to do it (see step 4).

3. Decide on Hubs

Unlike LocalTalk, Ethernet networks usually require a *hub* — a central box to which all of your networked devices are connected. Many LocalTalk networks use hubs too, but you'll need a new one to move up to Ethernet. Hubs are usually (but not always) installed in a wiring closet, so you'll need to run cable through walls and ceilings to reach your computers.

Many vendors — including Apple, Asanté, Dayna, Farallon, and Sonic Systems — offer four-, five-, and eight-port hubs. Such small hubs are quite similar, so make price your primary consideration when buying one; street prices start at around $125.

If your network includes no more than eight devices and they are located in the same office, you can avoid the wiring hassles associated with a hub by creating an Ethernet daisy chain. Farallon's EtherWave connectors work just like LocalTalk adapters: Install EtherWave NICs, or connect external adapters. Connect them to each device's serial port (use the parallel port for PCs), and use UTP wiring to

ILLUSTRATION / JAMES O'BRIEN

make a chain. Although the connectors are more expensive than other Ethernet adapters (and you'll have to buy one for every machine on the chain, whether it has built-in Ethernet support or not), you can chain eight devices with EtherWave. Note, though, that using a hub may be more cost-effective if you have more than four machines to connect.

4. Make Wiring Decisions

Wiring can be the most unpleasant part of setting up a network. First, you need to choose the correct cable for your particular network. When you open a catalog or call a wiring vendor, you'll face a snarl of cable types and confusing abbreviations. The basic wiring type for 10BASE-T networks is four-pair Category 3 UTP. Apple, Farallon, and other vendors sell Category 3 cable, but you can save money by buying from mail-order houses and specialty vendors. Black Box (412-746-5500), for example, sells Category 3 wiring for $75 per 500-foot roll. If your long-range plans include migrating to Fast (100-Mbps) Ethernet, get Category 5 cable instead. In bulk, it's only slightly more expensive than Category 3 (around $85 for a 500-foot roll from Black Box), and you won't have to rewire when you upgrade the network again. You also need RJ-45 connectors (available from cable vendors) at both ends of each cable you install. RJ-45s are similar to but slightly larger than the RJ-11s found on telephone and LocalTalk cables. Even if your LocalTalk wiring is ready for Ethernet, you'll need new connectors. Finally, you'll need a crimping tool and other wiring supplies: A supply kit costs $100 to $300 from Black Box and similar vendors.

Next, you need to plan the installation. Installing the wiring may be as simple as draping the cables along your floor moldings and using clamps to keep them out of the way. Or you may need to hire a wiring contractor (at perhaps $50 to $150 per hour) to run in-wall cable to a central wiring closet and hub. An

Home Port / how your computers and printers connect to Ethernet

UNLESS YOUR COMPUTERS are brand-new Power Macs or PCs, you'll have to purchase some kind of adapter or transceiver to make a connection. If you want to create a daisy-chained Ethernet network, choose a Farallon EtherWave adapter. All prices are estimated street prices.

Device	Connector Type	Adapter Cost	EtherWave Cost
New Power Mac (7200, 7500, 8500, 9500)	built in	NA	$109
Older Power Mac (6100, 7100, 8100), PowerBook 500 series and 190	AAUI transceiver	$39	$109
NuBus Mac (II, IIci, IIfx, some Quadras)	NuBus card	$112	$199
PDS Mac (SE/30, IIsi)	PDS card	$95	$199
LC-type Mac (LC, Color Classic, Quadra 605, Performa 400 and 500 series)	LC card	$95	$199
PowerBook (100 and Duo series)	SCSI adapter	$225	$299
ISA-based PC	ISA card	$100	$129
LocalTalk printer	external adapter	$325	$299

MacUser and MacWEEK chart the flight plan for Mac products at Gulfstream

Together, MacUser and MacWEEK make the buying of Mac products fly at Gulfstream Aerospace. Michael Rippey, systems engineer manager, equips his 100 engineers with Mac products, in collaboration with Glenn Toth, Macintosh systems administrator. In fact, outside the company, both men are also active officers in a local Mac users group.

Yet each is partial to his own primary source of information about the Mac market. For Mike, it's the timeliness of MacWEEK. For Glenn, it's MacUser's lab reviews because he specifies many products in a multiplatform environment.

Different magazines for different perspectives. Together, they are read by more serious buyers than any other source. Which is why, together, they are today's most effective total system for the selection of Mac products.

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Glenn: "I've been a MacUser subscriber from day one. Why? The in-depth evaluations, especially the comparative product reviews."

Mike: "MacWEEK is there every week for me. It keeps me informed as to what's available. It's so timely, it's there as soon as things happen."

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installer can connect new hubs and can tell you whether your wiring supports 10BASE-T Ethernet. If you're doing the wiring yourself, remember that within a 10BASE-T network, 333 feet is the maximum distance between a computer or a printer and the hub.

5. Get the Right Software

Your brand-new Ethernet network will be completely useless without the right software. If you're still using System 6.x, it's time to move up to System 7. Fast file sharing is a major reason for an Ethernet upgrade, and you can't do it without current system software. Make sure all networked Macs have the same version of AppleTalk and other Apple networking software. Current versions of Apple's software, packaged in a bundle called Network Software Installer (NSI), are available at Apple's ftp site (ftp://ftptoo.support.apple.com//pub/apple_sw_updates/US/Macintosh/Networking%26 Communications). To find out which version of AppleTalk is installed, open the Network control panel in your System Folder.

With the basics out of the way, you can expand your file-sharing and printing capability to include PCs. If you simply want to give PC users access to a file server or to Macs using file sharing, Apple's AppleShare Client for Windows (included with all AppleShare packages and sold separately for $199, with an unlimited-client license) will fill the bill. It doesn't support Windows 95 yet, but look for an update this year.

If, however, you want Mac users to have access to PCs over the network, look at Miramar's Personal MacLAN Connect ($199 per PC). It lets PC users make directories available over the network in much the same way file sharing does for Macs. It also lets PC users share printers on an Ethernet network.

With a faster network comes a chance to share more information. You may want to buy an Apple Workgroup Server to store your company's files and to serve as a host for shared databases, group-scheduling applications, or e-mail.

Fast Results

Ethernet speeds up every aspect of communication over a network. With plug-and-play connections and today's low prices, it may be the best productivity investment around.

Kelli Wiseth is a MacUser *contributing editor.*

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NET BYTES

Location Shooting

FINDING MAC OR PC files on a network is a lot easier with **ON Location for Networks,** a cross-platform, LAN version of the single-user file finder ON Location, from **ON Technologies** (800-767-6683 or 617-374-1400). Using indexes created by the ON Location for Networks Server Indexer software ($999), users can search for documents stored on Mac OS, NetWare, or Windows NT file servers. The Viewer Client software ($49 per Mac OS or Windows client) supports Boolean, word-proximity, and fuzzy-logic searches. A separate Indexer Client application ($99) lets users create indexes of their own hard disks, for searching by other users on their network. ◆ **PhoneNET PC** users looking for a way to preserve Mac-to-PC connectivity as they migrate to Windows 95 won't find it in a new version of the file- and printer-sharing software. **Farallon** (510-814-5000) has decided not to develop a Windows 95 version of PhoneNET PC; instead it's offering current users an $89 upgrade to CoOperative Printing Solutions' **COPSTalk for Windows 1.2f.** COPSTalk gives users of Windows 3.1, Windows 95, and Windows for Workgroups access to shared Mac volumes and provides Chooser-like access to AppleTalk printers. / Shelly Brisbin



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CIRCLE 90 ON READER SERVICE CARD

NET TRAVELER / By Michael Swaine

Hot Off the Wires

Newspapers are becoming Web pages, and your Mac is becoming a radio.

YOU KNOW IT'S BIG NEWS, but is the Internet also the next big news medium? *New Republic* editor and CNN commentator Michael Kinsley apparently thinks so: Kinsley has abandoned high-profile jobs in print and broadcast journalism to create an online news magazine for Microsoft.

The Webbed Press. Kinsley is hardly the first journalist to discover the Net. Newspapers started jumping online some time ago. At first, they built their cyberspace presence on the major online services — CompuServe, America Online, Prodigy, Delphi — but these days, it's hard to find a paper without a Web page.

The online offerings of the newspapers are still generally weak (and still generally free; no doubt there's a connection). The best ones offer actual news stories, frequent updates, and indexes of past stories. Among the better sites: The *Boston Globe*, at http://www.boston.com/globe, posts top stories, columns, and editorials; the *San Jose Mercury News* serves up breaking news at http://www.sjmercury.com; and the Raleigh, North Carolina, *News and Observer* may have been the first to offer Java access, at its Nando Times site at http://www2.nando.net/nt/nando.cgi.

The Net is also an ideal delivery medium for customized newspapers and clipping services, an insight that isn't lost on news providers such as Dow Jones (http://webserve.dowjones.com/wallstreet2/dir_of_services) and NetSnips Service (http://www.islandnet.com/~gwatts/netsnips.html). These services usually do not come cheap, however.

Livin' on the Air in Cincinnati. The broadcast media have taken to the Net more dramatically than the print media, mostly because of Progressive Networks' RealAudio software (player downloadable from http://www.realaudio.com), which delivers highly compressed sound of a reasonable quality. ABC, CBS, and NBC all have some sort of audio news and plans for live video, but you shouldn't count on getting video over your 14.4-kbps modem. National Public Radio, at http://www.npr.org, is a Traveler favorite, with lots of mellow audio to listen to as you surf the Web. CNN has a library of newsy QuickTime movies — including the infamous Rabin-assassination video — in its video vault, at http://www.cnn.com/video_vault/index.html, but has somehow failed to put up what is surely its most bankable audio clip: the mellifluous voice of James Earl Jones saying, "This is CNN."



ILLUSTRATION / ROBERT DIERCKSMEIER

Native Net News. The traditional news media coming to the Net must compete with Net-originated or Net-centric news sites and services. The Clarinet news service (available only through service providers that subscribe to it; see http://www.clarinet.com) offers wire-service news of politics, business, sports, weather, and more; it boasts over a million subscribers. There are also many Web-only news-brief sites that use wire-service feeds, such as the Yahoo news page, at http://www.yahoo.com/headlines/current/news. And you can subscribe to Edupage, a free thrice-weekly summary of technology news from a consortium of colleges, by sending mail to listproc@educom.unc.edu and including the message "subscribe edupage <your name>".

Some Net news services use nontraditional news sources such as the vast hierarchy of Usenet newsgroups, which sometimes report events before the traditional news media can process them. All this amateur newsgathering makes the Net an exciting, participatory place to get your news.

It also raises some doubt about the quality of the information you're getting. Of course, not all traditional journalism adheres to the highest standards. You can find reporting on the reporting that doesn't — as well as on some that does — at the *Columbia Journalism Review*'s site. Last year *CJR* posted the full text of all the year's Pulitzer Prize-winning stories at its Web site (http://www.cjr.columbia.edu), and it will probably do so with this year's winners when they are announced this month.

Tip of the Month

Check out Digital Equipment's hot new search site, a truly massive searchable index to the World Wide Web and Usenet, at http://www.altavista.digital.com.

Don't Know Net from NYT?

MacUser maintains a list of frequently asked questions (FAQs) about the Internet, *MacUser* itself, and this column specifically. Send mail to faq@macuser.com. *MacUser*'s address on the World Wide Web is http://www.zdnet.com/~macuser. You can reach me at traveler@macuser.com.

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MacWEEK

Our sincere thanks to the Editors of MacUser Magazine for awarding Conflict Catcher 3 the 1995 Editors' Choice Award for Best New Utility.

As the only Mac utility to ever receive a **5 Star** rating from **Macworld**, a **5 Diamond** rating from **MacWEEK** and the **MacUser Eddy Award for Best New Utility**, **Conflict Catcher 3 sets the industry standard for startup file management and conflict identification.** The editors say you need Conflict Catcher 3 —we know it will save you time and money!

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CIRCLE **14** ON READER SERVICE CARD

Buying a used, rather than new, PowerBook can save you a bundle. Here's how to make sure you get a good deal.



By Sharon Zardetto Aker

Buying a Used PowerBook

THE CUTTING EDGE of PowerBook technology may not be the best place for you — for instance, if your work mainly involves handling e-mail, other online activities, or a little word processing. If your primary need is portability rather than power, an older model may suit your needs and will cost a lot less than a 5000-series PowerBook.

The tricky part is identifying a good deal. With some scrutiny, you can distinguish between those PowerBooks that still have plenty of life and those that are ready to die. These tips on what to look for, the hidden costs, and how to care for an older PowerBook should help you make an informed buying decision.

The Old Gray PowerBook

Are the older PowerBooks, especially the first generation (the 100, the 140 series, and the 170), still viable machines at all? As the song says, two out of three ain't bad. I'd absolutely advise against purchasing a PowerBook 100. Regardless of whether or not its 68000 processor has the power to run the software you want at a reasonable speed, the real problem involves a different type of power: battery power. The lead-acid batteries peculiar to PowerBook 100s are at the end of their useful lives, and the best replacement you can get is a half-capacity battery, which carries a charge for only 20 to 30 minutes.

The other first-generation PowerBooks — the 140, 145, 145B, and 170 — are still viable (I use my 170 for online work every day and for word processing when I'm traveling). They have a more powerful processor — a 68030 — than a PowerBook 100, but they do have some crucial limitations: an 8-MB RAM limit and the lack of a video-out port.

If first-generation PowerBooks are still viable, second and third generations must still be useful too. They have equal or faster processors and a higher RAM limit. (Check the table for the RAM limit of each model.)

The Used-PowerBook Lot

If you decide an older PowerBook can meet your needs, where do you find one? Some mail-order places specialize in older-model Macs, used or not; check out the back of this magazine and others for such dealers. Try computer stores: They may have back inventory or returned items, or they may be able to connect you with people seeking to trade in an older model. An online service is another good place to find used PowerBooks for sale.

Caveat Emptor

OK, you've found a source for a used PowerBook; now comes the tricky part — making sure you get the best deal you can. Use this list of questions to compare one PowerBook with another and to make sure you know what you're paying for:

- How old is it? It's an obvious question but one that's important to remember.
- Has it ever been repaired or upgraded? A PowerBook with new components, such as a new floppy-disk drive, or a PowerBook that has been upgraded is better than one in its original form. Beware, however, of a PowerBook with a long list of repairs — it could be the sign of a rotten Apple.
- How much memory is in it?
- If it has an active-matrix screen, are there any dead pixels? You may not mind a permanent dark spot or two on your screen, but I'd make sure the dead pixels aren't in a crucial spot such as the middle of the screen.
- What system is on the hard disk? Do separate system disks come with the PowerBook? I'd make sure that they do. You're bound to need them sooner or later when you have system problems that require reinstalling the system.

ILLUSTRATION / VICTOR GAD

Hidden Costs

Regardless of what kind of shape the PowerBook you decide to buy is in, you're almost certain to spend additional money fixing it up after you buy it. Here's a list of common items you may need to buy:

• **A new battery.** Just because a battery is rechargeable doesn't mean it will last forever. If the battery is more than two years old, it's probably on its last legs and you should figure on replacing it. PowerBook NiCd batteries range in price from about $60 to $90. Buy the newest model of the same type a PowerBook came with.

• **A higher-capacity hard drive.** The earliest PowerBooks had 20- and 40-MB hard drives, hardly enough to hold System 7.5 and any one of the current Microsoft products. Plan on a drive replacement if the one in your PowerBook has a tiny capacity. And don't put it off too long: In perhaps as little as a year, internal SCSI PowerBook drives may be out of production, because the standard will be IDE drives. A 500-MB hard drive costs about $200.

• **A faster modem.** If the PowerBook you buy or own has a modem that's too slow (9,600 bps *may* be OK), plan to buy at least a 14,400-bps modem to replace it. Often, a 28,800-bps modem is the best deal, because it isn't much more expensive than a 14,400-bps one — around $325 for the former as opposed to $250 for the latter.

• **A new power-cord adapter.** Except for the problems with early AC adapters for the 100-series PowerBooks (the black ring on the plug going into the computer tended to crack), power adapters don't wear out. But they have been improved to charge your battery faster. If you have a NiCd-based PowerBook, plan to purchase a 24-watt or greater adapter if one does not come with your machine. You can expect to pay about $120.

• **An insurance policy.** It's a good idea to make an insurance policy, for instance AppleCare, a condition of a private sale to make sure you don't get stuck with a failing PowerBook. Either the seller can get it and transfer it to you, or you can try to get one yourself with the condition that if the PowerBook doesn't qualify for insurance, you can return it or get a discount equal to the repair cost of the disqualifying component.

Hands-On Inspection

If you can handle the PowerBook before you buy it, all the better. Here are a few items to inspect (see "Troubleshooting Hot Spots" for illustrations of potential problem areas):

• Check for damage to the case. Dents and scrapes may indicate that the PowerBook's been dropped or roughly treated.

• Turn the PowerBook on, and check the screen for flaws.

• Make sure the power sources work. First check to see if the PowerBook runs on the battery. Then make sure the power cord, when plugged in, is actually charging the battery. To check this on PowerBooks with System 7 or later, look for the lightning bolt in the battery icon. For an older system, use the Battery DA.

• Make sure that the hard drive works. If the PowerBook can't mount the hard disk, the drive may be dead. Before you assume it's a goner, ask the seller to try starting up from floppy, and if that doesn't work, try reinstalling the system software or updating the disk driver. If neither you nor the seller can get the disk to mount, ask for a discount, since you'll probably have to replace the drive.

• See if the trackball works. If it doesn't, attach a mouse to ensure that the problem isn't a global ADB glitch.

• Check for broken posts inside the case. Among the most likely and yet least obvious problems are broken posts that are meant to support various components (such as cards, the hard drive, and the modem). I've seen five 170s opened in the past few months, and all but one (mine, I'm glad to say) had broken posts. To test for broken posts, listen for them as you tip the closed PowerBook slowly in all directions. Fixing the problem requires buying a new bottom casing, which costs $35 to $100, depending on the PowerBook model. You don't *have* to replace it, but an unsupported hard drive (or any other component) in a portable computer is not a Good Thing.

Troubleshooting Hot Spots

Check for trouble before you invest any money in an older PowerBook, whether it's one you're buying or one you already own. Refer to the Hands-On Inspection section of this article for details on how to check for flaws.



Blind Purchase

Buying a pig in a poke, as the saying went in English marketplaces long ago (when felines in closed sacks were passed off as suckling pigs), isn't wise. Take measures to protect yourself if you're buying a PowerBook sight unseen. In a mail-order deal, use a charge card so you can stop payment if the goods don't arrive. A private purchase from an online seller is a little more questionable, since C.O.D. usually protects sellers more than buyers — but you can always stop payment on a check.

The Price Is Right

As for pricing guidelines on the used PowerBook itself, prices change too quickly to give you useful details here. But you can find updated information from several sources, including *MacUser*'s Macintosh Price Index, which is printed monthly in the News section. You can also find updated prices on several Internet sites, such as http://www.uce.com/ui_notes.html and http://program.com:70/0vff/used/UsedComputers.

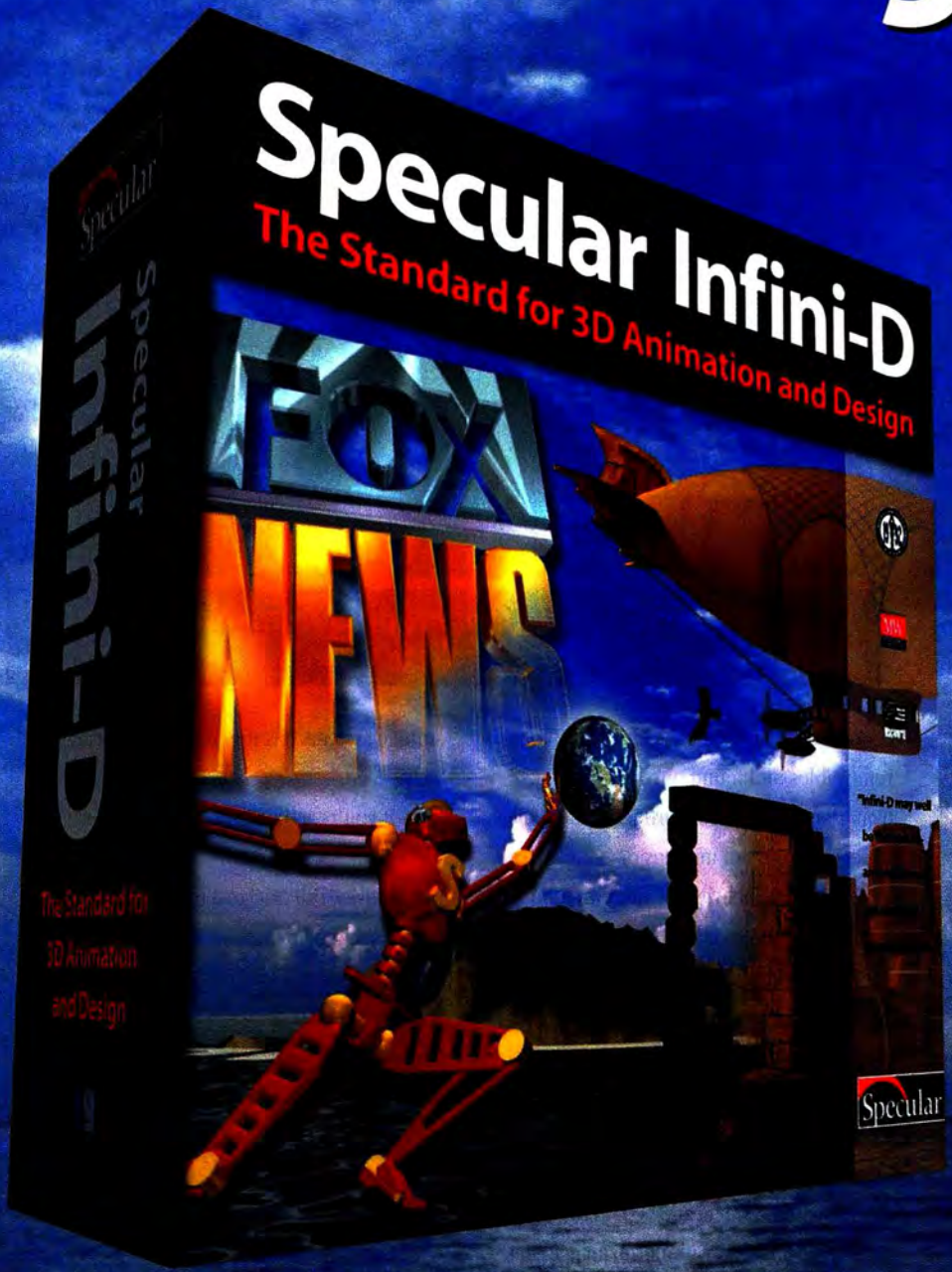
Sharon Zardetto Aker is a MacUser *contributing editor and coauthor of* The PowerBook Companion.

PowerBook RAM Limits

Model	Maximum RAM
100, 140, 145, 145B, 170	8 MB
160, 165, 165c, 180, 180c	14 MB
210, 230, 250	24 MB
270c	32 MB
520, 520c, 540, 540c	36 MB
150, 280, 280c	40 MB

If there's not enough RAM in the PowerBook you're thinking of buying, make sure it has sufficient RAM capacity.

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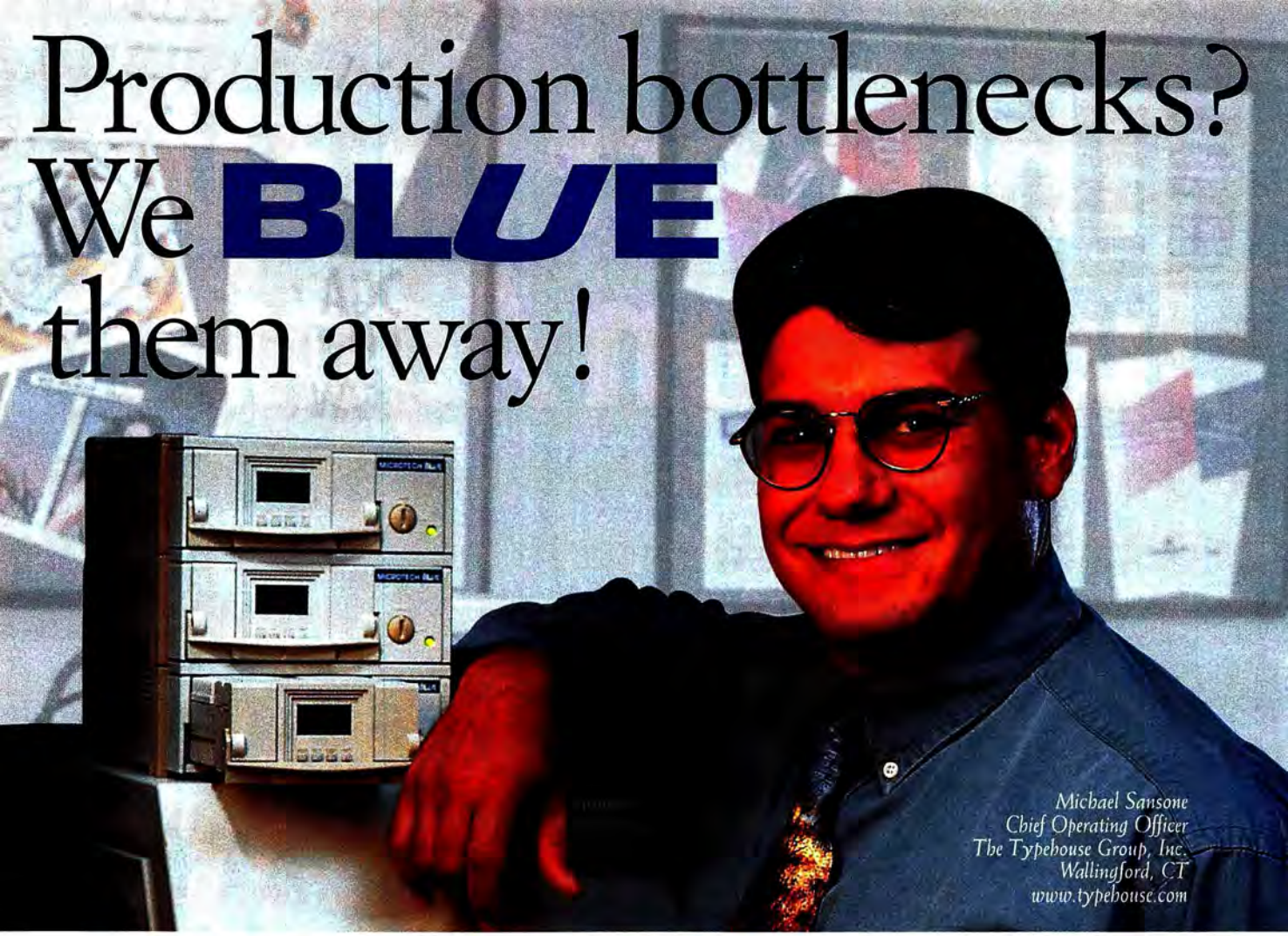
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CIRCLE 67 ON READER SERVICE CARD

Production bottlenecks? We BLUE them away!





"BLUE turned out to be more than a hardware addition, it's a profit builder."

The Typehouse Group, Inc. is one of the northeast's busiest, most creative and successful prepress facilities. As Chief Operating Officer, Michael Sansone is charged with keeping production flowing in the most cost effective manner possible.

"We had a bottleneck moving large files from scanning into production. Working across the network or transferring to removable storage systems was slow, and from an operator intervention standpoint, very costly. We had a problem," Sansone observed.

"We installed Microtech BLUE 2 gig removables and found our files moving from department to department in a matter of seconds . . . not minutes or hours. That's increased productivity . . . increased bottom line. BLUE turned out to be more than a hardware addition, it's a profit builder. It's tough to imagine functioning without it."

The more production intensive your environment, the more it will benefit from the portability and performance of Microtech BLUE. Our understanding of the prepress market, has allowed us to create a removable solution with performance that delivers up to nine times the throughput of a SyQuest or optical drive. Performance and intelligent design caused MacUser Magazine to exclaim that "This new line of elegant storage systems has the best engineering we've seen."

If you're looking for a proven storage solution that can directly impact your productivity, call Microtech for a list of authorized dealers in your area. And if you are a quality dealer of Macintosh imaging solutions, we would welcome your inquiry.

MacUser RATED OCTOBER 1995

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By Bob LeVitus and Christopher Breen

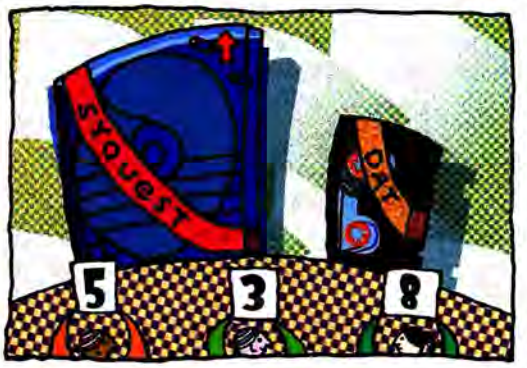
Help Folder

SyQuest and DAT compete for the title of best storage, and CD-R shows rough spots.

This SyQuest or DAT?

Q. Our firm uses very large graphics files that have a voracious appetite for storage. Obviously, floppies are not going to cut it for archiving and backing up. I've had wonderful experiences with DAT (digital audiotape) in the past, but my boss says DAT is unreliable. He insists on using SyQuest cartridges. Which is better for storing the hundreds of large files we have to access repeatedly?

Name withheld (to avoid getting fired)
Baltimore, MD



BOB: Both media have their strengths, but I'm with you — I prefer DAT. For one thing, I've found it's more reliable. I've been using APS DAT drives for years, backing up literally hundreds of gigabytes of data, and I've never lost a file. On the other hand, I've had so many problems with file corruption and damage on SyQuest cartridges that I've gotten rid of all of them and use DAT exclusively. My service bureau is just as happy to receive my work on a DAT cartridge as on a SyQuest cartridge.

CHRIS: If we were still living in the Bush era, I'd agree with Bob — in those days, SyQuest cartridges would go kablooey if you looked at them cross-eyed. Fortunately, SyQuest cartridges are much more reliable nowadays. Although I, too, dig DAT for its low cost and stability, SyQuest cartridges are okeydokey as *one* component of a redundant-backup set; I'd back up to more than one type of medium.

BOB: Whether or not you think DAT is more reliable, you'll have to agree it saves you money. A $10 DAT cartridge holds about 2 GB of data. By contrast, a $75 SyQuest cartridge holds only 270 MB. You'd need seven and a half SyQuest 270 cartridges — at a cost of $562.50 — to hold the same amount of data that fits on a single $10 DAT.

Sure, DAT hardware is more expensive (starting at about $700) than SyQuest (as little as $225 for an EZ135), but it doesn't take long for SyQuest to become a much more expensive proposition.

CHRIS: And even if you choose the inexpensive new SyQuest EZ135 or an Iomega Zip drive, with its less expensive cartridges, you'll still spend over $200 to get the amount of space you get with a $10 DAT.

BOB: To be fair, you can retrieve a file from a SyQuest or Zip cartridge in seconds, whereas file retrieval from DAT can take as much as a few minutes. And you can use a SyQuest or Zip cartridge as extra storage.

If speedy data retrieval outweighs all other concerns, get a SyQuest or Zip drive. Otherwise, go with DAT.

Seedy CDs

Q. Using a recordable CD-ROM for archiving was great until last week, when I got a disk-error message while unsuccessfully trying to open an archived EPS file.

Avoiding this kind of problem is exactly why I switched from SyQuest to CD-R. Am I living in a fool's paradise thinking my data is safe on CD-ROM?

Tracy Datlen
via AOL

CHRIS: No, you're living in a perfectly reasonable person's paradise, but you have to take some precautions. The problem could be the brand of disc you're using. To illustrate my claim, allow me to relate the following true-life tale:

A friend of mine who produces limited runs of CD-ROMs for in-house multimedia productions received complaints from clients that a recent batch of his discs failed on other people's systems. With just a little detective work, he discovered the problem: He had changed the brand he was using. After checking around with other recordable-CD-ROM users, he found that several of them had also had problems with this particular brand. He switched to Matsui discs, and from that day forward everything was ducky.

BOB: Care to mention the name of the vendor that produced those dicey discs?

CHRIS: It would hardly be fair to pick on TD . . . er, that is, no, I won't say. It's possible to have a bad run in any manufacturing process, and blank discs tend to be a bit more susceptible to weirdness than other kinds of media. According to my buddy, it's not unusual for people who roll their own CD-ROMs to switch

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Don't want to wait for an answer? Post your question on ZD Net/Mac, *MacUser*'s online service, or send e-mail to helpfolder@macuser.com or tips@macuser.com. We pay $25 to $100 for any undocumented tips we publish.

TIPS / Childproofing

Hiding Folders

Here's a simple way to hide items from unsophisticated users (this example concerns folders, but it also applies to files): For this trick to work, you must first turn on "Always snap to grid" in the Views control panel. Then make sure the view is by icon (on the Finder's View menu) for any window your kids are likely to open.

Next, give any folder you want to hide a short name, such as Hide. Create a new folder with a longer name, such as Placebo. Drag the Placebo folder *near* the Hide folder but not so close that the Hide folder is highlighted, and let go of the mouse button. The Hide folder should now be hidden behind the Placebo folder. To reveal hidden files and folders, simply view your folders by name.

Antonio Corral Encinas
Salamanca, Spain

brands every few months — depending on which seems stable at the time.

BOB: To find out the latest on what's reliable and what's not, you can frequent online areas where people who write their own CD-ROMs hang out (check the Mac-hardware forums on AOL and CompuServe and the comp.sys.mac.hardware.storage newsgroup, for example). Posting a question along the lines of "Who's making reliable, recordable-CD-ROM media these days?" should elicit many helpful responses.

Lame Games?

Q. My Power Mac just doesn't seem as fast as a comparable Windows machine. Take the games Wolfenstein and Dark Forces — they run faster on a 486 than on my Power Mac. And I mean three times as fast. What gives?

Alex Rampell
via AOL

CHRIS: Place a Pentium-toting PC and a Power Mac side by side, and play one of the games you mentioned on both machines. Notice a difference other than speed (discounting the extra hour it takes to install the PC version)? Right, the PC graphics are chunkier.

BOB: Just say it — they're uglier.

CHRIS: One reason the Mac version is slower is because the screen resolution on the two platforms is different. PCs don't have to throw nearly as many pixels onto the screen as do Macs (PCs project one-fourth as many pixels, in most cases.) Not coincidentally, it takes about four times the processing power to blast all those pixels onto the screen. That takes a toll on speed.

Fortunately, screen resolution cuts both ways. Yes, higher screen resolution slows down games somewhat, but modern ports of PC games, when done correctly, look better on the Mac than they do on the PC.

If you want to speed up your games and you can live without hi-res graphics, by all means switch to something a little chunkier if it's offered. Likewise, choose a smaller screen size.

Also, use an extension manager to create a "game set" that includes only those extensions absolutely necessary to keep your Mac alive while you're duking it out with all those hostile otherworlders (see figure 1).

BOB: The one thing that'll help more than anything else is to install a 256K or 512K Level 2 cache card. These cards are not cheap — roughly $250 to $500 — but you'll get the speed you desire. Both games you mention run blazingly fast on my Mac, which has a Level 2 cache.

CHRIS: Did someone say, "Level 2 cache?"...

Step Up to Level 2

Q. I think I understand what a cache is: a part of RAM that's reserved for temporary storage of recent command sequences. And I understand the point of having a cache: If the stored commands are used again, the Mac will execute them faster. But I don't know what differentiates Level 1 and Level 2 caches. Does one perform better than the other? Is 512K twice as effective as 256K? (It's twice the price.) Finally, do I have to be performing an intensive task, such as video editing, to notice any difference?

Ted Hopes
via the Internet

CHRIS: To begin with, a Level 1 cache is part of every PowerPC-based computer. It's right there on the PowerPC chip.

BOB: A Level 2 cache, sometimes called a secondary cache, comes on a small circuit card and may or may not be preinstalled. Most current PowerPC Macs have a cache-card slot, which lets you add or upgrade the Level 2 cache.

The speed improvement can be significant. My system with a 256K Level 2 cache card feels much zippier than the same system without.

CHRIS: In answer to your next question, a 512K Level 2 cache isn't twice as fast as a 256K for most tasks, although it costs twice as much. Probably the best you will see is a 10- to 20-percent improvement. Soon-to-be-released 1-MB Level 2 caches should be even faster.

BOB: Finally, you'll notice the difference a Level 2 cache makes in most everything you do: editing video, scrolling through documents, applying Photoshop filters, even quitting programs. No matter what you do with your Mac, a Level 2 cache will let you do it faster.

Phony Network

Q. My roommate and I want to network two Macs in different rooms in our house in order to play network games. Each room has two phone lines — a shared voice line and an individual modem line. We'd like to avoid running a cable between the two machines if possible. What do you suggest?

Mark Leonard
via the Internet

CHRIS: Mark, first of all, let me commend you for having your priorities straight. Exchanging messages and files across a network is all fine and dandy, but nearly all of that work can be replaced by a saunter down the hall or a short phone call. As far as I'm concerned, the really compelling reason to have a network is to blast the bejeebers out of the folks hanging about on the other end of the line.

Despite your aversion to stringing cable, that's what I'd do. If the rooms are side by side, you simply need to buy LocalTalk connectors (or Ethernet if you can afford it), drill a quarter-inch hole between the two rooms, and run the LocalTalk phone line through the wall.

If you're renters and are concerned that the landlord will glom onto your cleaning deposit based on this insignificant violation of the lease, lay in a supply of Spackle and fill the hole when you move out. With a little sanding and the proper paint, said Lord of the Land will never know the difference.

BOB: Wait! Before you endanger your lease, there's an easier way. You did say you had phones in each room, didn't you? Here's a hot tip: You know the RJ-11 jack in the wall, the one your phone plugs into? It contains four wires, but your phone requires only two of them and you can use the other two to form an ad hoc LocalTalk network. The two wires

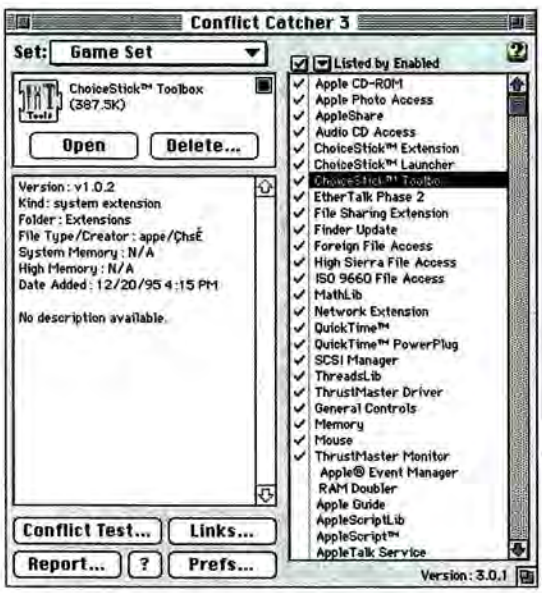


figure 1 / To speed up how fast you blow through a squadron of enemies, solve a mystery, or perform any action in your game of choice, try disabling all but the essential extensions. Defining a "game set" of extensions, using a utility such as Casady & Greene's Conflict Catcher 3, makes disabling the right extensions all the more convenient.



figure 2 / It's noble, but not easy, to refill printer ink cartridges. Rather than give up and throw your cartridges in a landfill, try using a refill kit, such as this one from Computer Friends, to make refilling a pleasant job.

I'm speaking of are usually the yellow and black ones. Clip a 120-ohm terminating resistor between the yellow and black terminals, and then wire a modular extension cord (such as a phone cord), connecting one wire of the cord to each terminal. Connect the other end of the phone cord to a connector, such as the Farallon PhoneNet, and you've got an instant network connection.

CHRIS: Bob, you do understand that by using your method, I will no longer be able to write off that dual-speed Makita reversible drill I just picked up at Price Club? Sigh. OK, if you have your wiring chops down and fear your landlord more than the phone company, follow Bob's advice.

If LocalTalk is out of the question, you might consider using your modem lines to play modem-to-modem or via Apple Remote Access. Unfortunately, not all games support these modes, and on those that do — Marathon in particular — performance can be unplayably poky.

Inky Mess

Q. I'm interested in refilling the cartridges in my Hewlett-Packard inkjet printer in lieu of buying a new printer cartridge. It seems like a great idea. What are the drawbacks to refilling your own cartridges?

Jackie Musil
via the Internet

CHRIS: One disadvantage is that some poor archaeologist working in the 29th century won't get that government grant because there'll be fewer plastic cartridges taking up space in 20th-century landfills.

The other disadvantage is that unless you know what you're doing, you're going to make a horrible mess and splatter ink from one end of your office to the other.

Unfortunately, over a year ago, Hewlett-Packard discontinued its line of cartridges that were a breeze to refill. The replacement cartridges are nearly impossible to refill without a dedicated refill kit.

BOB: It's so tough, in fact, that you'll find a stern warning on each new cartridge excusing HP from responsibility for any mistakes you make during the refilling process.

CHRIS: Although I've heard of people successfully refilling these cartridges by drilling holes, injecting the ink, and sealing the holes with a hot-glue gun, I'd forgo all the hassle and buy a refill kit.

Such kits contain ink, a syringe, the tools you need for the operation, and detailed instructions. Take heed of the instructions to create a vacuum with your syringe, or prepare to have the inside of your printer look like a Jackson Pollock painting.

I'm particularly keen on the approximately $40 black-ink kit (see figure 2) from Computer Friends (800-547-3303 or 503-626-2291). This right-thinking company supplies you with a reusable syringe and bottles of ink rather than disposable plastic ink injectors. Computer Friends makes refill kits for just about every inkjet printer — color or monochrome — on the market.

BOB: Chris' advice is, as usual, worth more than the ink it's printed with.

Performa Anxiety

Q. A medical-software rep told me that Performas are designed specifically for home use and are unsuitable for business use. Is there really a difference between a Mac and a Performa? I say the guy is bonkers.

David G. Holt
via the Internet

CHRIS: Now, now. I wouldn't go so far as to say the guy is bonkers. No, I think it's simply that his company has entrusted the key for the controlled-medications cupboard to the wrong person.

But even without the obvious drug abuse, you can hardly blame him for being confused. Straightening out the whole Performa/Mac thing isn't easy.

BOB: Nah, nothing to it. Performas are Macs with bundled monitors, keyboard, software, and (usually) a CD-ROM drive and a modem. The part that makes no sense is that the different Performa model numbers just barely correspond to those of their Mac brethren.

CHRIS: Think of each Performa as a Mac in a bundle in a colorful cardboard box with the Performa logo slapped on the outside. In many cases, these machines are exactly the same as the Mac they're based on.

For example, the Performa 6110 series (the 6110, 6112, 6115, 6116, 6117, and 6118) is based on the Power Mac 6100/60. These Performas contain the same PowerPC 601 processor and 8 MB of soldered RAM as the 6100/60. The only thing that separates the Performas from the regular ol' Mac — other than the bundled software and the monitor — is where they're sold, the capacity of the hard drive, and the inclusion of a CD-ROM player and modem.

BOB: I almost always recommend Performas for first-time computer users who have small or home-based businesses. With the killer bundle of software — often worth more at retail than the hardware — a Performa makes a wonderful first Mac. ClarisWorks is more than adequate for many business tasks, and it's just one of the programs that comes with every Performa.

CHRIS: The idea that a Performa can't be used for business is ludicrous. More important than the label on the outside is the stuff that makes the machine tick. To get the most-intimate poop on every Mac ever made, check out Mark Simmons' Mac Catalog Database (available exclusively through ZD Net/Mac; see end of article).

Out to Launch

Q. Even though I put Launcher into the Startup Items folder, it doesn't show up at startup. How can I get it to do so?

Tyler Curtis
via the Internet

BOB: It's nice to get an easy one for a change. First of all, Launcher belongs in your Control Panels folder. Once you've moved it there, open the General Controls control panel and click on the check box labeled "Show Launcher at system startup." That'll do it.

Bob LeVitus is the director of evangelism for Power Computing. Christopher Breen and Bob are both Macintosh-book authors.

You can find the shareware and freeware programs referenced in this article on *MacUser*'s Web page (http://www.zdnet.com/~macuser). You can also find them in the MacUser and ZD Net/Mac areas on CompuServe and eWorld. See How to Reach Us for instructions on accessing ZD Net/Mac.

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Think your Mac can't prepare you for rugged wilderness sports? Think again.

By Tina Blaine

Indoor Outdoor Adventures

THE STEREOTYPE OF COMPUTER USERS as pasty-faced nerds who rarely see the light of day has always amused me. After hours of screengazing, I'm usually cranky and anxious to give my muscles a good workout. Whether it's hiking, biking, or skiing, just about any mountain or trail will do. Although I used to think these two parts of my life didn't mix, some recent CD-ROM offerings and sites I've found on the Web have convinced me otherwise. These resources offer information, entertainment, and in-depth instruction you'll find well worth the time you invest — even though it means spending a few more minutes indoors!

The Real Dirt

Although there's nothing like the rush of a great trail ride, many mountain bikers never make it from the pavement to the earth below. One run through the **Mountain Biking CD-ROM** (★★★★; $49.95 list), from Media Mosaic (800-972-3766 or 503-225-1988), got me back out spinning my wheels. Besides offering a crash course on climbing, pedaling, and shifting techniques, this disc delivers a wealth of information on advanced moves, including microhops, dyno-wheelies, bank turns, and bump swallowing. Yikes. I didn't know what any of those moves were either, until I saw a narrated frame-by-frame animation with a rad skeletal rider demonstrating each move in detail. Tips on equipment, trail etiquette, ecological ethics, and personal safety are also included, along with the basics for beginners. From stream crossings to the steep downhill grade, Mountain Biking gives you the real dirt for the ride, even if the gnarliest terrain you'll travel is a city street.

You can also seek pedal partisans on the Web, starting at the Wheel Sports Directory (http://www.atm.ch.cam.ac.uk/sports/wheel.html), which offers a lengthy list of cycling sites. And for information about good places to ride, check out The Internet Mountain Biking Directory (http://xenon.stanford.edu/~rsf/mtn-bike.html).

Rock and Roll

If you've always wondered what rock climbing is all about but aren't quite ready to scale Yosemite's El Capitan, try Media Mosaic's **Rock Climbing CD-ROM** ▶ (★★★★; $49.95 list). Your adventure begins at Smith Rock, Oregon, where you'll discover the tricks of the trade: grips, pulls, edging, smearing, and how to prevent climbing injuries. This well-crafted disc offers animations, QuickTime video clips, and useful advice on safety, gear placement, visualization, relaxation, and overcoming fear — perhaps the most critical element of becoming a skilled climber.

If you're looking for other pebble pinchers, check out The Climbing Archive (http://www.dtek.chalmers.se/Climbing/contents.html) — it can take you to guidebooks, hardware information, a directory of climbing partners, and even songs and poems about climbing. Don't forget your ax.



Pray for Snow

Although it's rather late in the season, my vertical challenge of choice is downhill skiing on sublime snow-covered slopes. Capturing the thrill of first descents and fanatical falls has always been one of Warren Miller's filmmaking fortes, but **Warren Miller's Ski World CD-ROM** (★★½; $35.95 estimated street), from Multicom Publishing (800-850-7272 or 206-622-5530), doesn't live up to expectations. With a sluggish, narrated photo-history time line from the 1930s to the present, Miller takes us from the development of Sun Valley as America's first winter resort to a 26,000-foot Himalayan ski descent

ILLUSTRATION / ROBERT ZAMMARCHI

without oxygen. Events and developments that had a strong impact on the growth of the sport — such as the 1936 Winter Olympics, toe irons (metal bindings), and groomed slopes — are there for the curious.

The video-based instruction touches on a few critical topics — such as how to fall and get up, skiing on ice and powder, and staying in control — but it could



have gone into much greater depth without leaving us out in the cold.

Ski World also offers buggy but comprehensive listings of lodges, maps, ski trails, and more, but if you're looking for all that plus info on cross-country, telemark skiing, or snowboarding, check out The Ultimate Ski Link page (http://soho.ios.com/~haviland/ski.html), The Consummate Skiing List (http://ski.websmith.ca/ski/other.html), and the Great Outdoor Recreation Page on Snowsports (http://www.gorp.com/gorp/activity/skiing.htm).

As the snow thaws, you might want to consider a hike in Rocky Mountain National Park, even if you don't feel like going all the way to Colorado. You can click and drag for 90- to 210-degree panoramic views from the parking-lot trailhead to the Continental Divide with **Virtual Landscape I: Winter Hiking in Rocky Mountain National Park** (★★½; $29 estimated street), from Rocky Mountain Digital Peeks (800-266-7637 or 303-258-3779). Narrated geological minitours of the region feature 2,000 full-screen color images and use pop-up 3-D navigational tools to take you through the main trails of the park. Using the VL Navigate cube takes a certain amount of patience, but with the aid of the disc's topographical maps, you can be winding your way across frozen lakes and through 4-foot snowdrifts in no time. The disc's soothing soundtrack offers Satie and sounds of crunching snow; all that's missing is the hot chocolate.

To explore the northern Rockies, see the Rocky Mountain Hiking page from Jasper, Canada (http://www.ycs.ab.ca/market/latimer/website.htm) — or seek a wider range of topics with the Princeton University Outdoor Action Program Guide to Outdoor Resources (http://www.princeton.edu/~rcurtis/outother.html).

Hit the Trail

Anyone interested in topographical maps will want to check out **Topo! Yosemite** and **Topo! San Francisco Bay Area** ▼ (★★½; $99 list), from Wildflower Productions (415-282-9112). Highly educational, these discs offer extensive geographical information, map legends, and a multitude of ways to view terrain. Although the Topo! series assumes more knowledge than many of us possess — for example, a working knowledge of geological terms — you can pinpoint your latitude, longitude, and elevation easily as you scroll over existing maps. You can also customize and print your own maps, but it took me a while to get the hang of drawing with a mouse (a drawing tablet would have come in handy here), and I was frustrated that there wasn't an Undo function for when I made mistakes joining trails together. Otherwise, I loved looking at the maps and using the search features for Yosemite's trails, caves, and streams. All in all, the Topo! discs are a great tool for



planning your next adventure.

To order topo maps for U.S. National Parks, log into Trails Illustrated (http://www.sccsi.com/Trails/maplist.html) — you can even get products such as topo maps on T-shirts.

Trail's End

If you're still not convinced that you can be sports-savvy and a computer juggernaut at the same time, you can try packing your PowerBook on the trails, but you'd better watch your step

The Two Dads

BY RIK MYSLEWSKI AND JIM SHATZ-AKIN

JIM: What's that ditty you're humming — "Fugue for Flatulent Feline"?
RIK: Watch it, bub — it's a spirited-yet-sensitive composition from an aspiring genius: my eight-year-old daughter, Rox.
JIM: Oops . . . my sincere apologies, O inordinately proud one.
RIK: She's really taken to this month's music-education programs. They've introduced her to pitch, rhythm, melody . . .



JIM: . . . and *keys*. Windy Hill's **Menlo the Frog** searches the Land of Once Upon a Time for the Music Man's windup key, and Fiddle the jester searches for the key to the kidnapped queen's throne room in Theatrix Interactive's **Juilliard Music Adventure.**
RIK: Menlo's journey is a curious blend of cloying, fun/scary, and — in The Swamp of Someday — downright gross adventure.
JIM: I just wish it didn't have so many long stretches of noninteractive animations.
RIK: Rox wishes the games in Menlo were more substantial too.
JIM: Well, she is a bit old for "A Musical Fairy Tale," for 3- to 7-year-olds, but I agree with her that Juilliard Music Adventure has better activities.
RIK: Its puzzles teach sophisticated musical technique, even though some are really *hard*.
JIM: The Melody and Rhythm tools may be tricky to master, but I like using them to build songs.
RIK: For *real* song creation, though, Rox and I prefer Ars Nova's **A Little Kidmusic** and Voyager's **Morton Subotnick's Making Music.**



JIM: They both do a good job of addressing a wide age range — at the cost of some added complexity in their interfaces.
RIK: Making Music's "talking Mort" online assistance helps a lot.
JIM: Kidmusic is worth the extra effort, though. Besides offering music lessons and sing-alongs of a ton of great old tunes, it's a bona fide MIDI notation program.
RIK: Rox recorded performances from our MIDI keyboard and saved her songs for MIDI playback.
JIM: Thus creating . . .
RIK: Why do I feel another pun approaching?
JIM: . . . Rox-and-roll.

Juilliard Music Adventure ★★★½

Ages: 9 and up.
Price: CD-ROM, $34.95 (estimated street).
Kids use rhythm and melody tools to solve puzzles that teach advanced musical techniques; they can also write songs of their own.
Company: Theatrix Interactive, Emeryville, CA; 510-658-2800.
Reader Service: Circle #417.

Menlo the Frog ★★★

Ages: 3 – 7.
Price: CD-ROM, $59.95 (estimated street).
Storybook teaches musical rudiments to the very young but goes long stretches without interactivity; theme song may bug parents.
Company: Windy Hill Productions, Menlo Park, CA; 415-854-6127.
Reader Service: Circle #419.

A Little Kidmusic ★★★½

Ages: 3 – 13.
Price: Floppies, $75 (list).
Powerful MIDI-based tool lets kids sing along to well-known tunes, "dissect" them, and then build their own songs; complex interface can be daunting.
Company: Ars Nova Software, Kirkland, WA; 800-445-4866 or 206-828-2711.
Reader Service: Circle #418.

Morton Subotnick's Making Music ★★★★

Ages: 5 – 10.
Price: CD-ROM, $39.95 (list).
Versatile musical workshop works well with kids across wide age range; outstanding online help mitigates sometimes confusing interface.
Company: Voyager, New York, NY; 800-446-2001 or 212-431-5199.
Reader Service: Circle #420.



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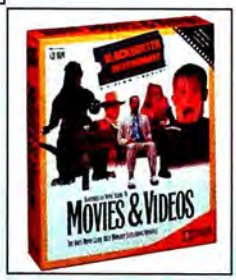
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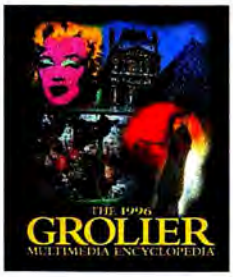


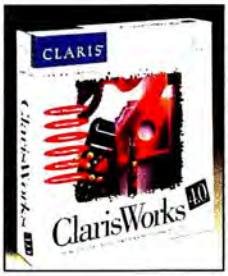
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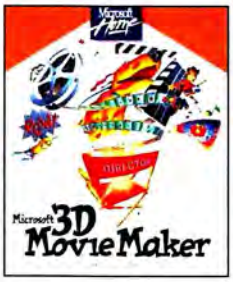
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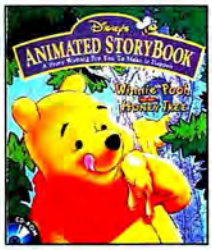
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The Game Room

BY BOB LEVITUS

THIS MONTH I'VE GOT two for the brawn and two for the brain. Marathon 2 and Wing Commander III take you on shooting odysseys — one through mazelike corridors and the other among the stars. The Incredible Machine and You Don't Know Jack are intellectual challenges that feed your mind rather than any adrenaline addiction.

Marathon 2: Durandal

Sanguinary Success

The original Marathon was so wickedly wonderful that it won the *MacUser* Eddy Award for best action game of 1995. Marathon 2, the long-awaited sequel, is even better.

The basic premise is the same as in the original — you collect weapons and kill creatures. But this version provides a wider variety of landscapes, nastier civilians (they



didn't shoot back before), and new weapons and monsters. Technological improvements include way-cool directional stereo sound effects and a larger window (640 x 480 pixels).

Marathon 2 is also probably the best network game ever written for the Mac. It has more themes than the original, including King of the Hill, Tag, and Kill the Guy with the Ball. Each package includes the single-player game plus one network license; you can get additional network licenses — which I highly recommend — for $15 apiece.

It's *the* state-of-the-art adrenaline-pumping game. I should warn you, though, that if you're burned out on Marathon, you might quickly tire of Marathon 2 — it isn't that different.

GAME POINT

Marathon 2: Durandal is probably the best first-person gore-fest ever, and it's particularly fun with network opponents. Wing Commander III also gives you a good dose of death and destruction but tempers it with some interesting interactive video clips.

The challenging puzzles in The Incredible Machine (TIM) 3.0 and the quiz-show shenanigans of You Don't Know Jack will keep you entertained without spilling any guts on your screen. TIM will keep you busy longer, but You Don't Know Jack is a blast with a friend or two.

Marathon 2: Durandal ★★★★½

Price: $40 (estimated street).
Company: Bungie Software, Chicago, IL; 800-259-0060 or 312-563-6200.
Reader Service: Circle #421.

Wing Commander III: Heart of the Tiger ★★★★

Price: $60 (estimated street).
Company: Origin Systems, Austin, TX; 512-434-4263.
Reader Service: Circle #422.

The Incredible Machine 3.0 ★★★½

Price: $35 (estimated street).
Company: Sierra On-Line, Bellevue, WA; 800-757-7707 or 206-649-9800.
Reader Service: Circle #423.

You Don't Know Jack ★★★★½

Price: $30 (estimated street).
Company: Berkeley Systems, Berkeley, CA; 800-344-5541 or 510-540-5535.
Reader Service: Circle #424.

Wing Commander III: Heart of the Tiger

Heavenly Battle

They say the best games suck you in and don't let go for a long time. That's Wing Commander III: Heart of the Tiger. A grand and epic drama on four CDs, it combines live-action video with one of the most enjoyable simulators I've ever flown.

This interactive movie is star-studded — Mark Hamill (yes, Luke Skywalker) is your alter ego, and Hollywood veterans John Rhys-Davies, Jason Bernard, and Malcolm McDowell play supporting roles. It has an interesting script and story line, and the acting is better than on most CD-ROMs of this genre.

As usual in interactive games, the way you interact with characters alters the plot. What's not so usual are the 50 hair-raising shoot-'em-up missions the plot revolves around, with five spacecraft you can fly and an astonishing array of guns and missiles to use for wreaking havoc. A rousing 16-bit soundtrack and a generous dose of digitized speech immerse you in the experience.

Unfortunately, those who get to play Wing Commander are in an exclusive club. You must have a Power Mac with a Level-2 cache. Also, if you don't have at least 8 MB of RAM, you may lose part of the soundtrack.

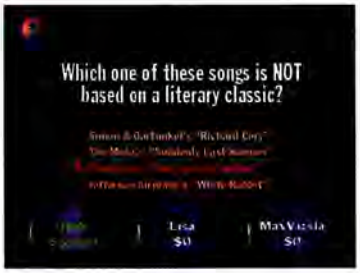
Regardless of the restrictions, for those who have a Power Mac, Wing Commander III is one of the most enjoyable games you can play on it.

The Incredible Machine

Well Oiled

The latest, greatest release of an incredibly enjoyable game, The Incredible Machine (TIM) 3.0 is a puzzler that challenges you to invent wacky, Rube Goldberg-style machines. As long as the machines do what they're supposed to — put the soccer ball into the basket, for instance — then you can move on to the next, slightly harder puzzle. Each of the 150 puzzles offers a selection of parts and gadgets — for instance, bricks, tubes, walls, dynamite, gravity inverters, teeter-totters, pulleys, ropes, and motors. TIM also lets you create your own puzzles.

The puzzles that come with the game range from very easy to nearly impossible. The music, sound effects, online help, and generally useful hints make TIM a ton of fun. Although it's a game that can keep adults fascinated, its drag-and-drop interface is simple enough for kids. My seven-year-old, Allison, is totally addicted to it, although she complains that it runs too slowly on her LC III. She's right — play is a bit too leisurely on older Macs.



You Don't Know Jack

Irreverent Quiz Show

What has over 800 questions and more than 20 hours of nonrepetitive verbal abuse, is accelerated for the Power Mac, and is fun at parties? The answer is You Don't Know Jack, Berkeley Systems' slick game show for one, two, or three players.

To get the picture of You Don't Know Jack, imagine an R-rated radio game show with a theme similar to *Jeopardy!* But instead of Alex Trebek, a sarcastic, smarmy host spurs you on. You can play alone, but it's much more fun to play against one or two opponents.

You Don't Know Jack works hard to keep things fresh. Each game has a "gibberish question" that has you try to figure out what well-known saying rhymes with a sentence that sounds like complete gibberish. The last question of every game is a "Jack attack," where fortunes can be won or lost.

My one reservation is that this isn't a game you're likely to play over and over. After about three times through, I had enough. However, it may be the best party game ever written for the Mac. Gather 'round the computer, and give it a try.

Bob LeVitus is a MacUser *contributing editor and Power Computing's director of evangelism.*

The Tip-Off

Marathon 2: Durandal

Get your hands on a copy of Marathon Cheater 3.5 or later, a freeware program by Iceland's Eggert Thorlacius. It lets you add to your health, give yourself incredible powers, and increase your arsenal of weapons. You'll find it in the game sections of online services and on Eggert's home page: http://itn.is/~eggi.



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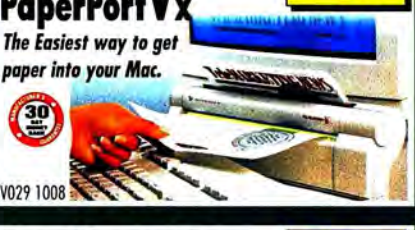
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Micropolis	2050MB	8.5ms	7200	512K	5yr	MC4221AV	$699	$759
Conner	2147MB	9ms	5400	512K	5yr	CFP2105S	$599	$659
Seagate	2147MB	9ms	5411	512K	5yr	ST32430N	$619	$679
Seagate	2147MB	8ms	7200	512K	5yr	ST32550N	$679	$739
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Seagate	4290MB	8ms	7200	1024K	5yr	ST15150N	$1159	$1219
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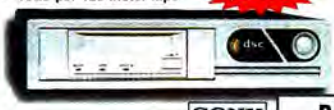
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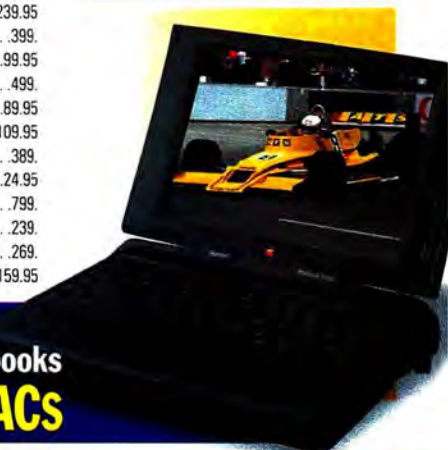
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4MB 80/70NS	4100/4107	$149/151
64-pin SIMMs for IIfx		
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4MB 80/70NS	4080/4087	155/155
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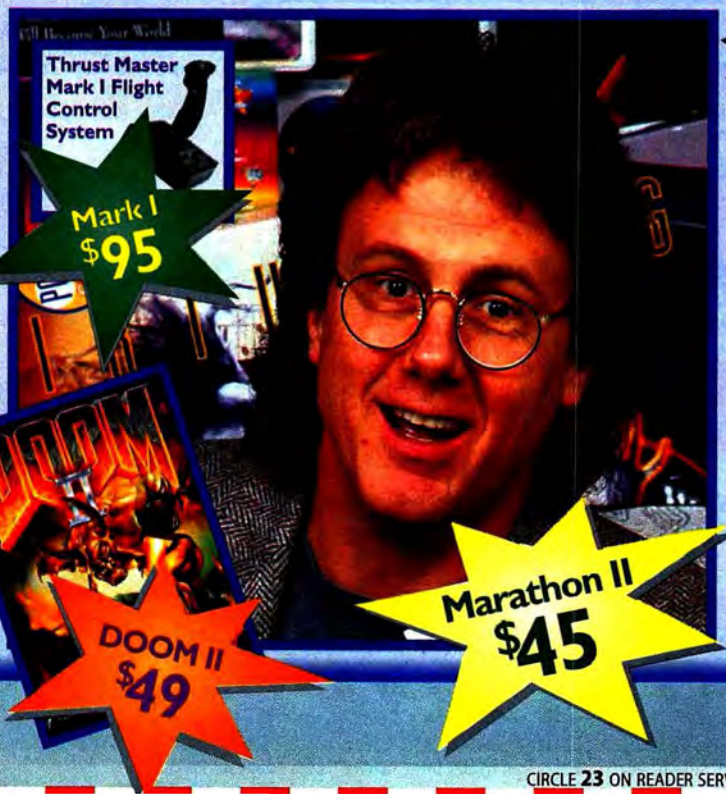
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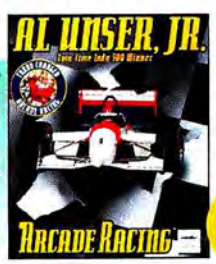
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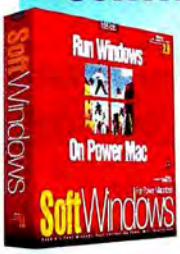


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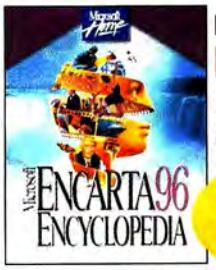
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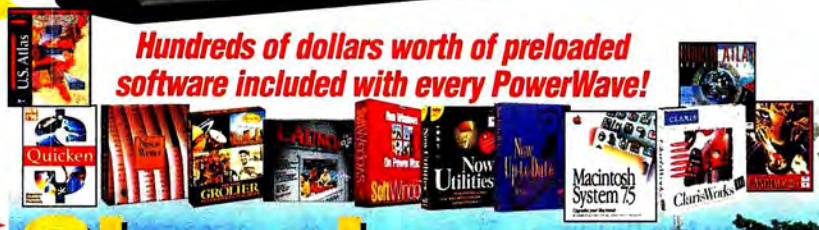


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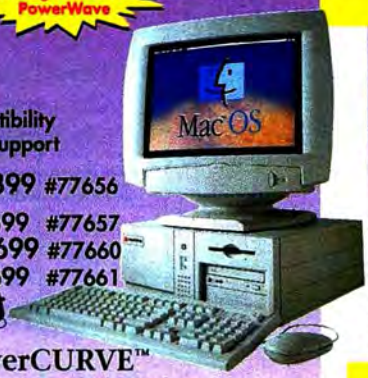
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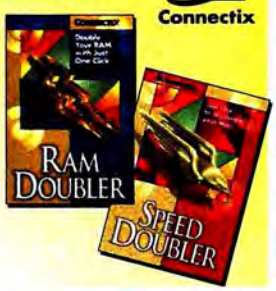
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APS I 1080 IBM DPES 31080	1034MB		239.95	339.95
APS Q 1080 Quantum 1080 Fireball	1042MB	MacUser LABS ★★★★ ◆◆◆◆ MacWEEK	269.95	349.95
APS Q 1280 Quantum Fireball II 1280	1222MB		299.95	399.95
APS I 2160 IBM Ultrastar ES	2063MB		499.95	599.95
APS MS 2000 Micropolis 4421	2000MB		549.95	649.95
APS Q 2210 Quantum Capella VP32210	2100MB	MacUser LABS ★★★½	629.95	729.95
APS ST 4200 Seagate ST 15230N	4094MB	MacUser LABS ★★★★	899.95	999.95

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Model	Capacity	Awards	Internal	SR2000
APS MS 2.0 Micropolis 4221	1955MB	MacUser LABS ★★★½	$599.95	$699.95
Fast/Wide or AV versions are available for an additional $100.00				
APS Q 2.0 Quantum Atlas XP32150	2050MB	MacUser LABS ★★★★	799.95	899.95
Fast/Wide version is available for an additional $100.00				
APS ST 2.0 Seagate ST 32550N Barracuda	2047MB		799.95	899.95
APS MS 4.0 Micropolis 3243	4064MB	MacUser LABS ★★★★	999.95	1099.95
Fast/Wide or AV versions are available for an additional $100.00				
APS ST 4.0 Seagate ST 15150N	4094MB	MacUser LABS ★★★½	1199.95	1299.95
APS Q 4.0 Quantum Atlas XP34300	4101MB	◆◆◆◆ MacWEEK MacUser LABS ★★★★½	1199.95	1299.95
Fast/Wide version is available for an additional $100.00				

SCSI POWERBOOK DRIVES

Model	Capacity/Features	Drive Type	Internal
APS I 810 IBM Travelstar XP	810MB 4900 rpm	Fast SCSI-2	$499.95
APS I 1.2 IBM Travelstar XP	1215MB 4900 rpm	Fast SCSI-2	699.95

IDE POWERBOOK DRIVES

Model	Capacity/Features	Drive Type	Internal
APS Q 810 Quantum Europa	810MB 3800 rpm	Fast ATA2	$399.95
APS PB 170 Avatar mechanism	170MB Each cart $49.95	Removable cartridge	399.95
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Model	Capacity	Awards	Internal	SR2000
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APS DAT DDS-1 Non-Compression Mechanism	2GB		$649.95	699.95
APS HyperDAT DDS-2 Compression Mechanism	8GB		849.95	899.95
APS HyperDAT Pro DDS-2 High Speed Mechanism	8GB		1049.95	1099.95
APS DAT Loader600 Ideal for unattended large network backups	48GB		N/A	2499.95
APS DLT30 Digital Linear Tape Mechanism	30GB	MACUSER EXPERT XWARD FINALIST LABS	N/A	4499.95
APS DLT40 Digital Linear Tape Mechanism	40GB		N/A	5999.95
APS DLT4500 Loader Digital Linear Tape Mechanism	200GB		N/A	9999.95
APS DLT4700 Loader Digital Linear Tape Mechanism	280GB		N/A	11499.95

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Model	Awards	SR2000
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Model	Capacity	Awards	Internal	SR2000
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APS SQ 5200	194MB	LABS ★★★★½ MACWORLD	$339	389.95
APS SQ 3270	255MB	LABS ★★★★	N/A	349.95

APS CD-ROM DRIVES

Model	Awards	Internal	SR2000
APS T 3701 6.7X-speed CD-ROM		$399.95	$449.95
APS PD4 Optical storage with 4X CD-ROM in one device	N/A		599.95
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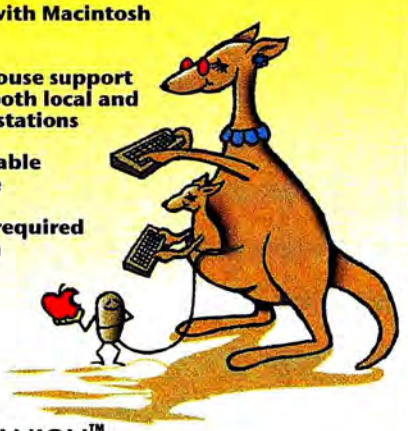
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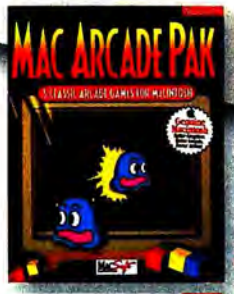


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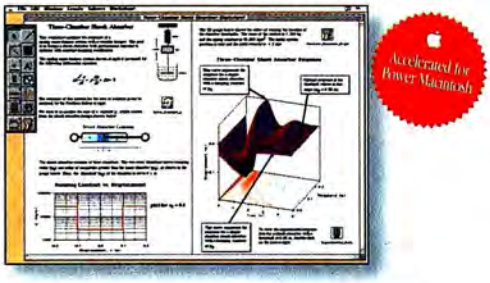


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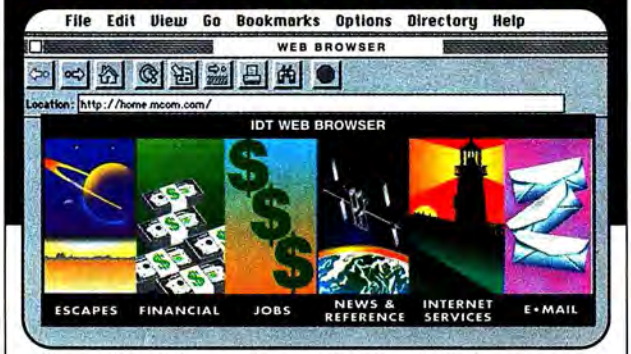
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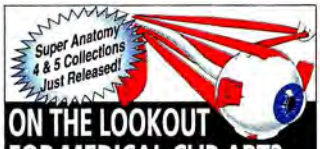
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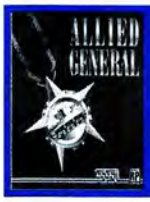
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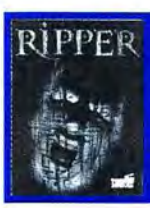
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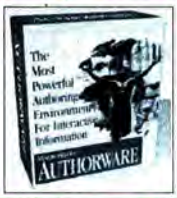
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ANDY IHNATKO

AOL and Flyby Rights

WELL, FOLKS, it's finally happened. I'm not proud of this, but I must report that I've finally seen something on the Net that offended me all the way from my dandruff down to my Odor-Eaters.

Oh, sure, I *thought* I'd experienced it all in almost a decade of using the Internet and 15 years of modeming in general. I've looked in on political forums that addressed the problems of modern government by suggesting solutions that were, depending on how you looked at them, either eye-opening reassessments of Hamiltonian doctrines or just plain old-fashioned Class B federal offenses. In my quest to plumb the depths of the Net, I've hit the newsgroups and Web sites of religious groups; conspiracy theorists; radicals of every stripe, fabric, and texture . . . and yes, one time it was late at night and my hunger for entertainment couldn't be sated by the real-estate infomercials on TV at 4 A.M., and so out of curiosity, I checked out the alt.sex.oh-great-gravy-sir-dont-tell-me-this-actually-does-something-for-you.pictures newsgroup. "How wonderful that the Internet has blossomed as the premier medium for the free expression of ideas," I said to myself afterward, while in the shower frantically scrubbing my brain with a wire brush to drive the image out of my head. Through it all, the Letter-to-the-Editor-writing part of my personality was slumbering.

Slumbering, perhaps, but its *Star Wars* R2D2 Talking Alarm Clock was set for late December. That's when I logged onto AOL and attempted to create some new screen names for myself; *AndyI* did and does serve me well, but after four years, it was time for some variety. My *MacUser* handle (for use in official conferences) was processed without a hitch, my two supersecret IDs as well. But then I tried to register my "public" secret ID, the one that is more or less common knowledge: *FlyBy.* I use it when I want just a *little* anonymity. As with the rest, I typed it into AOL's on-screen form, hit Enter, and picked up my soda while I waited for either confirmation or the news that it was already taken.

Instead, after a little bit of dialogue between my AOL software and the host, I was informed that use of that word was Restricted.

The Duck Comes Down

I stared at the screen. Had I accidentally typed a dirty word? Hey, maybe *restricted* just meant that *FlyBy* was a reserved System-level account or something. To test the first possibility, I requested a rather popular and authoritatively offensive four-letter word for a screen name.



AOL responded with the exact same petulant rejection. Restricted.

This, of course, was good for almost two solid hours of speculation. I got a pen and wrote out *FlyBy* on a sheet of paper. I said it out loud, over and over again. I said it backward. I sifted my memory of past years at school and summer camp, but the only dirty joke that even came close to using *FlyBy* was the one that ended with "Oh, well, that's when I turned off the radar." Stumped, I sent an e-mail message to AOL's offices. "Sir or Madam: Fearing severe beatings, I always stayed away from the smoking section of my elementary-school playground. Now I'm kicking myself, because I think Bobby Mayer was just the sort of kid who could have told me what's so smutty about the term *FlyBy.* Explain, please."

While waiting for a reply, I did some empirical investigation: If *FlyBy* was too dirty for AOL's delicate sensibilities — remember, this was the same outfit that hastily expelled the word *breast* from its data banks, inadvertently making it impossible for breast-cancer support groups to function — then what *wasn't?* *Winkle* must have passed the purity test at some point — it was already taken, as were *Semprini, Mountie, Eject,* and even *Waldo.* All of these words were OK by AOL, as were *Gashuffer, Freebaser, PotJunkie,* and *CrackHead* . . . not the least bit offensive to AOL's computers. Same for . . . for . . . OK, I've just gotten off the phone with my editor, and after I read him the list and waited patiently for his assistant to bring him back around with vigorous slaps to the head, he assured me that I cannot print any of the rest. Let's just put it this way: They are all current AOL screen names that have passed AOL's strict code for God, Country, and healthy breakfasts. George Carlin wasn't permitted to say (mumble-somethinger) in his act, but he's welcome to introduce himself as such in public forums.

But that's not what offended me. Oh, sure, those names are all phenomenally tacky, but they serve a valuable social purpose: After all, much like eyebrow piercing and those clever Coed Naked Sports T-shirts, they make the morons of America easier to spot (perhaps Captain ButtPincher is not the person to approach about the merits of Cherubini's *Requiem Mass,* for instance). No, what got me hopping mad was AOL's official response. It seems that *FlyBy* wasn't banned; it was just being kept out of circulation in case the previous user of that name had second thoughts about canceling his AOL account. I'm offended because, for no reason, I went ahead and thought up a patently offensive practice (involving a parachute harness) that could well be called FlyBy, and now I've got to go and floss between my synapses.

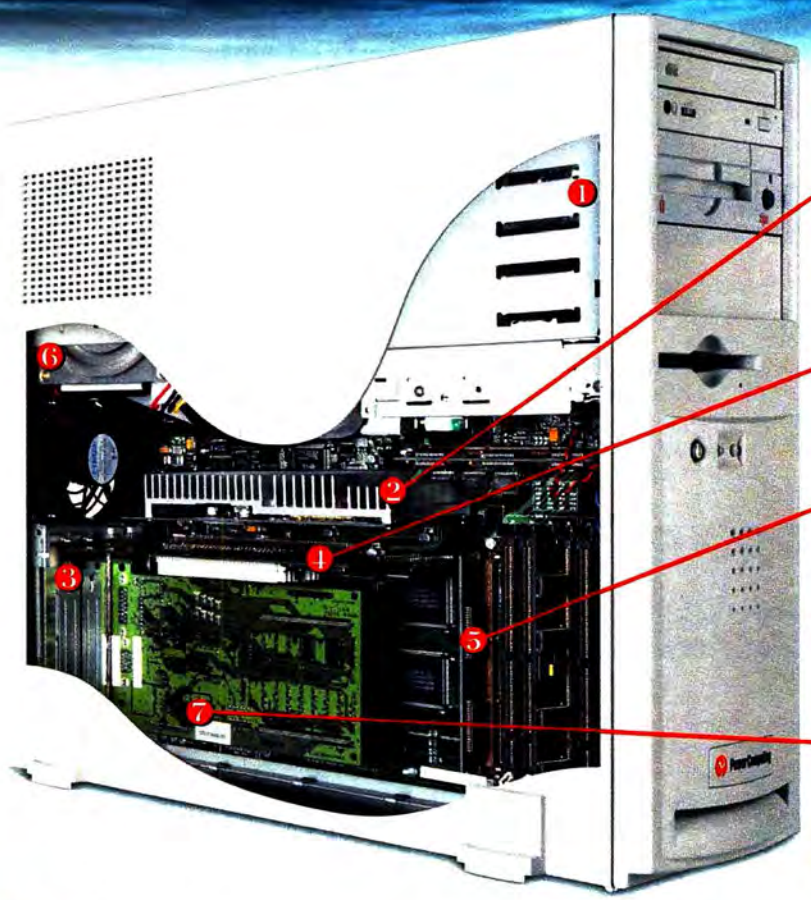
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TEST CENTER INFOWORLD HOT PICK
Infoworld - JUNE '95

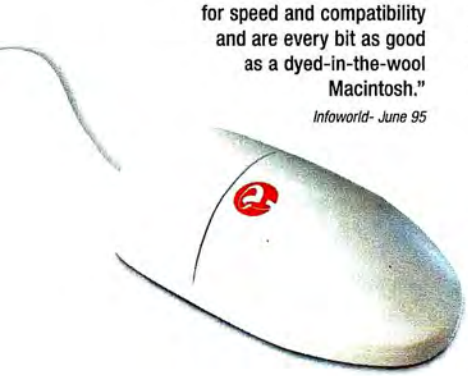
Editor's Rave!

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MacUser- Aug 95

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Infoworld- June 95



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3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/2MB VRAM
Extended Keyboard & Mouse

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132 MHz PowerPC™ 604

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Built-in Ethernet (10Base-T & AAUI)
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MW EDITORS' CHOICE

"A machine we love even more than the PowerMac 7500 - the PowerWave 604"

MW ★★★★ *Macworld- Feb 96*



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64-bit PCI Graphics w/2MB VRAM
Desktop Computer Case
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Quad-Speed (4X) CD-ROM Drive
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